The Builder.

VOL. LXXIV. No. 2873. FEB. 26, 1898.

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A German Treatise on Hospitals.

TRULY art is long and life is short. The volume before us* occupies 969 quarto pages—a large proportion of it being printed in very small type—and yet it is only the first part of the fifth division of the fourth portion of what is styled (with a touch possibly of sarcastic humour) a "Handbook of Architecture."

Professor Kuhn's work divides itself into two portions. One-third of the book, roughly speaking, is occupied with a remarkably full history of the development of the hospital system from the earliest times; the remainder is devoted to the practical questions arising in the consideration of modern hospital planning, construction, and arrangement. Each portion is judiciously divided into chapters and sections, and there is a good table of contents, so that it is possible to turn to any part that may be desired without loss of time; it would, perhaps, have been advisable to have provided an index as well, as reference to the numerous minute points raised and discussed throughout the volume would thereby have greatly been facilitated.

The history of hospitals, according to Professor Kuhn, commences with the Buddhists. An inscription of the indefatigable King Asoka (quoted by our author at length), remains to tell us of the foundation of an institution of this nature in the third century B.C. After briefly sojourning in India we are led by our author to Persia, thence make a sudden and short flight to Ancient Mexico, returning by way of Greece and Rome to the Holy Land. In the case of each country Professor Kuhn gives the evidence for or against the existence of hospitals in early times. He then proceeds to discuss at great length and fulness the development of hospitals under the influence of Christianity—the influence to which the credit of the existence of these charities is, of course, mainly due—commencing from the Xenodocheion of the primitive period. The history is traced by the Professor through the monastic hospitals of the Early Middle Ages (with an excursus on the Monastic Orders which especially devoted themselves to the care of the sick and aged) to the gradual emancipation of these institutions from their identity with collegiate establishments in the twelfth-fourteenth centuries. Each stage of the history, as it comes under discussion, is exhaustively treated, and no difficulty is shirked. A short notice of Lazar-houses, and a brief recapitulation concludes this extremely interesting chapter in evolution. The hospitals of the Renaissance period occupy Professor Kuhn's attention in his second chapter, those of the eighteenth century in his third. In the latter, as it is the commencement of the modern period, the treatment is naturally rather fuller, and the author divides his subject for convenience' sake into sub-headings—Hospitals for General Purposes, Hospitals for Special Complaints, Military Hospitals, and Hospitals for Infectious Diseases. This division forms the basis of the classification adopted throughout the rest of the volume. It is impossible to summarise these chapters, seeing that they principally consist of mutually independent facts relating to the foundation of the chief hospitals dating from this period, with the individual history of each. We need say only that the whole of the civilised world in both hemispheres has been laid under contribution. Indeed, were it possible within the limits of our space to give a summary of these chapters, it would be of little practical value to readers of the *Builder*.

The fourth chapter enters, at enormous length (pages 129-310, nearly all in small type), on the subject of hospitals and their development during the present century. We can best give, in a brief space, some idea of the truly national thoroughness displayed by Professor Kuhn, by a short abstract of one section of this part of his work. For this purpose we shall intentionally select one of the less lengthy sections. In describing the history of hospitals for children during the special period of forty years between 1825 and 1865, the author commences with the foundation of the "Charité" at Berlin in May, 1830, and gives a description of that institution. Then in order of foundation follows Friedeberg's Children's Hospital at St. Petersburg, in 1834; of this building an account is given also; the Children's Hospital at Vienna (1837) comes next, the stages of its history being detailed and its buildings described, with dimensions, accommodation, &c. This brings our author to the time at which Huegel wrote his "Beschreibung saemmtlicher Kinderheilanstalten in Europa nebst einer Anleitung zur zweckmaessigen Organisation von Kinderkrankeninstituten." Professor Kuhn pauses at this point to abstract the main views and conclusions of this writer. Resuming his history of the foundation of independent institutions of the class under discussion, the Professor next treats of the various Paris hospitals for children in order of their dates; then the Great Ormond-street Hospital in London, and the Borchardt Hospital in Manchester, are mentioned, though they are not described at such length as are the Continental examples. The section ends with a very careful account of the Children's Hospital at Lisbon, with full dimensions; and an excellent bibliography. These bibliographies, we may here notice, are liberally interspersed among Professor Kuhn's pages, and form not the least important part of his work; many of the references are to articles which have appeared in the *Builder*.

Besides this section on children's hospitals from 1825 to 1865, of which we have given an outline, there are also accounts of military, general, children's, and isolation hospitals from 1800 to 1825, and isolation and military hospitals from 1825 to 1865. In the last a considerable amount of space is naturally devoted to the hospital arrangements adopted during the American Civil War and the War in the Crimea. The historical portion of the work being thus finished, Professor Kuhn takes up the larger, and, to the so-called practical" man, the more important subject of the theory of modern hospital construction and management. He begins by elaborately tracing in detail the development of the modern principles of hospital arrangement from 1865 to the present day. The various experiments in dealing with patients and diseases of different classes, and the opinions of the leading medical authorities in all the civilised countries in the world, are set forth in order of date, so that it is possible

* "Handbuch der Architectur: vierter Theil:—Entwerfen, Anlage, und einrichtung der Gebaeude." 9ten Halb-Band, 1ten Heft. Krankenhaeuser, von Professor Oswald Kuhn in Berlin. Stuttgart, 1897. Price 42 marks (2*l.* 2*s.* 0*d.*).

to follow out the various steps by which a gradual approximation to the system at present in use was obtained. That Professor Kuhn is competent to treat of the practical as well as the historical side of his subject is shown by the chapter which follows. This chapter, which occupies no less a space than pp. 343-662, contains everything that an architect commissioned to design a hospital should know about the details and requirements of hospital wards. It is the principal chapter in the book, and is divided into three portions: an account of the various departments of ward construction in their perfected form; a classification and description of the wards of permanent hospitals; and a similar classification of those of hospitals for temporary purposes. Here again it will be convenient to select one subsection, and by a brief abstract of its contents to illustrate Professor Kuhn's treatment of his subject as a whole.

In the first portion of this great chapter Professor Kuhn dissects the wards, and in turn takes up each of their details, which he treats independently and exhaustively. Their size and shape, their lighting, position, floors, walls, roofs, doors, windows, and other parts; their ventilation and heating; artificial light; subsidiary and accessory rooms; methods of access from one room or floor to another—corridors, steps, and lifts—and last, the ordering of the sick-room, are discussed one after another. In all these departments of his subject Professor Kuhn is quite up to date; the modern practice of building hospital wards with rounded corners between walls, and between walls and floor, as in the case of the Leeds Infirmary, is—to take one example out of many—duly mentioned.

As an instance of Professor Kuhn's thoroughness, we may give a short abstract of his section on windows. The first point considered is the position of the windows in the ward walls with respect to the beds. This must be so chosen that no draught falls on the beds whenever opposite windows happen to be opened; while on the other hand, a good and equable light must be secured for the purposes of medical examination. These and similar points are enlarged upon to the extent of a page and a quarter. The size of the windows has next to be considered. Here the opinions of several authorities, architectural and medical, as to the amount of light required in proportion to the superficial area of the floor, the cubic contents of the room, and the number of the beds, are brought together and tabulated; particulars being also given of these details in the case of the principal hospitals in the world. Then the nature of the window openings—the height that their sills should be from the floor, the side of the wall on which the frames should be, &c.,—is examined. Professor Kuhn notes that the frames should be on the inside, not the outside, of the wall; or, if placed outside, that the internal sills should be rounded off, to prevent dust from settling as well as to keep them from being used as seats and shelves, that the proper opening of the window be not interfered with. A short section follows upon the object of ventilation by windows in addition to that provided by special ventilating apparatus—the special purpose of completely purifying the air when the weather permits them to be opened. Paragraphs follow upon miscellaneous points: the construction and material, and the means of securing the greatest possible glass-surface; the quality of the glass that should be used; the kind of sash-fasteners that ought to be employed; the respective merits of single and double-glazed windows; and the various species of windows—sash, casement, and the rest—the merits and demerits of which, as well as particulars of the buildings in which each is used, are fully given. Into this discussion exigencies of space precludes our entering.

In the two sections at the conclusion of the chapter, Professor Kuhn, having considered the parts of a ward independently, proceeds to put them together to make the complete ideal sick-room. In the first of these, the wards of permanent hospitals are treated. These hospitals are classified into what Professor Kuhn calls "Pavilion Hospitals"—that is, those in which each story does not contain more than one ward, or at most two, in line, separated by the staircase, &c.; hospitals for infectious diseases; hospitals for special purposes—paying patients, convalescents, lunatics, &c., &c.—and separate buildings for watching doubtful cases. Each section is illustrated with a wealth of examples described and delineated in plan, section, and elevation; the sources of information followed by the author in collecting his illustrations are very varied—the *Builder* among the rest—and the buildings selected as examples are taken from all countries. Hospitals for temporary emergencies, military or epidemic, occupy the concluding section. These are treated in a similar manner. The chapter concludes with a portentous bibliography of the subject, covering nearly twelve pages of small type.

An English writer on a subject of this nature would probably—at great sacrifice of detail—have condensed his whole work into the limits of this single chapter; and people in this country are such specialists, that it would be difficult to find a writer like Professor Kuhn equally good as an antiquary and a "practical" man. However that may be, our author has not yet done with his subject. Two more chapters are to follow, filling 300 pages between them. The first of these is comparatively short, occupying fifty pages only, describing the various residential, official, sanitary, mortuary, and other essential apartments; in each the same untiring exactitude is to be found as in the rest of the book. The last chapter, in accordance with Professor Kuhn's method above adverted to, collects the results of the inquiry pursued in the two previous chapters, into the ideal hospital; with all necessary additional information as to choice and treatment of site, water supply, and so forth—the various recommendations as before, being strengthened by example as well as by precept.

That there should be occasional slips in detail (such as an error as to the relative position of Nottingham and Leeds) is only human; and the work as a whole is so admirable and exhaustive that it seems ungracious to find any fault with it. There are, however, two adverse criticisms that must be made. The first is the want of an index, to which we referred at the outset of this review. The second is the style of writing in which Professor Kuhn has clothed his matter. Insufficient attention has been paid to this important consideration, as is too often the case in German writings, with the result that the author's diction is obscure in places, and the reader who derives pleasure from seeing a good work well done is deprived of the additional pleasure of seeing it artistically done as well. This criticism is written in full appreciation of the fact that in England this detail is just as completely neglected. The English style of the vast majority of technical text-books is nothing short of scandalous, and is in many cases a positive infliction to read. A great deal too much of that vilest of jargons, "Specification English," finds its way into print.

A reader interested in hospitals, and prepared to follow the elaborate ramifications of the subject through the liberal bibliographies provided for him in this great work, need never want for employment—his life-work lies before him.

THE REPAIR OF SALISBURY TOWER.

THE work of reparation and strengthening of the tower of Salisbury, which has been in progress for the last two and a half years under the superintendence of Sir Arthur Blomfield, is now practically completed, and the scaffolding will shortly be removed.

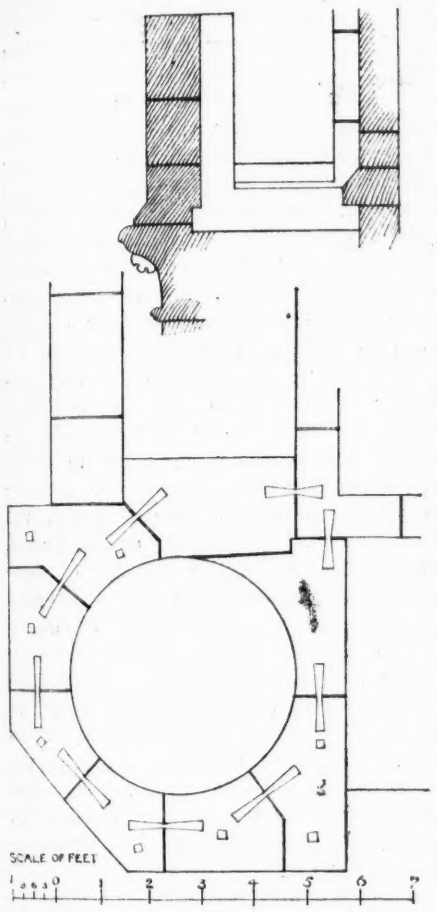
The work that has been done hardly comes under the heading of restoration except in one or two portions of the tower, where some decorative features have been partially renewed. For the most part it has been work of a purely practical kind, consisting in the replacing of decayed stones in such a manner as to renew the bond which had been destroyed, or, in most cases, to provide a better and securer bond than the original builders had taken the trouble to make. The dangerous condition of the tower has not resulted so much from any settlement or any pushing out of the walls by the spire, as from the decay of a good deal of the stone and the weakening of the angles of the tower by the consequent disruption of the bond, which had left in some instances slits which could be seen through, between the angle buttress masonry and the body of the work. The masonry seems to have gone most in these positions; in some portions of the height the general face of the walls is in very good condition, and the decay has mainly been in the angles and sides of the buttresses.

The work has been of a risky and difficult nature, requiring the greatest care and caution, and has consisted in taking out one or two stones at a time and replacing them with new stones in longer lengths, and cutting away the back portion of the ancient masonry where it seemed necessary to insert a through stone to bond the whole together. The object throughout has been to get in new stones of as large a bed as possible, so as to secure a strong bond; and the work at the angles seems now to promise at all events a long term of security to the tower. Some idea will be formed of the extent to which the stonework was decayed from the fact that in one portion of the work it was necessary to repair the cornice stones and finials above before proceeding with the insertion of new stones below, as the upper work would have been in danger of being shaken down during the latter operation.

The north-west main pinnacle was so completely decayed that it had to be condemned entirely and rebuilt; the original

stones are at present collected in the building yard. The construction of this large pinnacle gave a curious illustration of the easy-going procedure of Mediæval masons, as the stones were simply backed together without a through bond of any kind, the centre line being a straight joint all the way up.

It is another curious incident that these pinnacles, which appear from below to be octagonal, and ought logically to be so, are in reality seven-sided, a design adopted obviously to save the labour on one out of the eight angles. The mitreing of the



Plan through Cornice Course, North-west Turret.

range of gablets, at the angles, presents also some odd instances of "fudging," which however could not be noticed from below except with a telescope. The foreshortened view up the spire from the gallery at the base shows in a striking manner its twisted form; one angle having a quite obvious convex curve, as if with the intention of an entasis, while another angle seen from the same point of view presents a perfectly straight line. The detail of the tower, when seen at close quarters on the scaffolding, does not present that massive character and vigour of sinking and relief which one finds, for instance, at Peterborough; the character of the work, as of that of the whole design of the Cathedral, being marked by elegance rather than power.

Besides the rebuilding of the north-west pinnacle, a considerable portion of the range of gablets below the upper stage of the tower has been restored, and as this is not the invention of any new feature, but merely the re-instatement of a portion of a decorative feature which had decayed, it appears to be a justifiable kind of restoration, on the principle that design counts for something as well as history. At the bases of these gablets were wolf-head bosses of which one or two remain nearly perfect, and a good many in a more or less dilapidated state. Where the gablets have been renewed the wolf-heads have also been inserted as modern carving; these are executed with a great deal of force and vigour, and will probably tell well from below. Whether it is well to insert this modern carving in an ancient building is a point which we admit is open to question. As a matter of effect the tower will look the better for them, in a general view. The objection that they may in process of time come to be confounded with original work might be met by making a key elevation of the work on this stage, colouring the modern work as a record of what was done.

We give, by the architect's permission, a reduction of one of the working drawings showing how the stones of the cornice of one of the turrets have been fixed with dowels and copper cramps.

Mr. Thompson, of Peterborough, was the contractor for the work, Mr. Tebbs acting as clerk of works.

NOTES.

Seventeenth Century Plans of Athens.

M. HENRI OMONT, of the Bibliothèque Nationale, Paris, has done to archæology a long-needed service. He has just published in a splendid folio the drawings of the Parthenon marbles, supposed to have been made by the French artist, Carrey, and preserved in the Bibliothèque. To these, already in part reproduced in the Berlin Denkmäler, he has added the curious plans and maps of Athens made during the seventeenth century by the Capucin monks. The Capucins made their headquarters in Athens, in the monument of Lysicrates (1669). Their original plan was lost; but an early copy made by Guilletière in 1675 for his "Athènes ancienne et nouvelle" exists, and is here reproduced. It is a remarkable fact, to which Dr. Dörpfeld has already drawn attention (Mittheilungen, 1895, p. 510), that in this plan the Enneakrounos is marked as on the west slope of the Acropolis; there is also marked the ruins of a circular building, which the Padre Coronelli named "Teatro di Baccho o Lenaion." This seventeenth century evidence cannot be ignored in the "Enneakrounos episode" controversy, and M. Henri Omont has now made accessible the material for its adequate discussion. His book is published by Leroux. It contains also the sketches made by Cyriac of Ancona in 1435.

The Proposed Kronstadt Cathedral.

THE international competition for the new Cathedral at Kronstadt has now been decided, but the result has been unsatisfactory owing to the first and second premiums not having been awarded, and the third premium, which was awarded to Mr. W. Ssussloff, of the Russian Royal Academy, was for a design which was not recommended for execution. The competition was for a Cathedral in which 4,000 persons were to be accommodated, and there were a considerable number of conditions regarding the materials to be used and the character of the design. The first premium was to be 5,000 roubles, the second 2,500, and the third 1,500, but there was a curious restriction that the first premium should only be awarded to such design as was in every way ready for immediate execution without any alteration or modification whatsoever, and it was on this account, *i.e.*, the fact of no design being suitable for immediate execution without alteration, that the first two premiums were not awarded. It may be observed that, although the competition was nominally an "international" one, we do not hear of any but Russian competitors.

The Panthéon, Paris.

ALTHOUGH the interior decoration of the Panthéon was commenced twenty-five years ago it is still far from being finished; and in fact, for want of the necessary votes of funds, the Fine Arts Department, which has the work in hand, can only proceed very slowly. Thus M. Falguière's "Liberté," which was completed some months ago, has not yet been cast, and only the plaster model has been put up. On the other hand M. Mercié and M. Dalou have not yet commenced the execution of the groups of orators and generals of the Revolution whose statues are to decorate the central nave. In regard to the paintings, M. Humbert has not completed his mural paintings, and M. Puvis de Chavannes has not even commenced the actual execution of the fine series of frescoes, the cartoons for which were so much admired at the last Champ-de-Mars Salon. It is to be feared, therefore, that the Panthéon will for a long time preserve the cold and cheerless character which this former temple of religion has assumed since it was metamorphosed into a shrine of national glories.

Saxon Remains at Barton-on-Humber.

To the eastward of the Saxon tower of St. Peters, Barton-on-Humber, the foundations of an eastern extension, a chancel, have been brought to light, certainly contemporary with the tower. It measures internally 14 ft. 6 in. by 11 ft. 6 in., and has a square eastern termination. The south-east quoin of the foundation was found, as well as parts of the north, south, and east sides of the structure. Mr. Hodgson Fowler, who, with Professor Baldwin Brown, examined the remains, is preparing, we believe, a full description of them.

Liskeard Church Tower.

IT appears that the Vicar and his Committee have availed themselves of the Borough Surveyor's report, alleging further dilapidation of Liskeard Church tower, to bring new pressure to bear on the Chancellor, and that they are about to apply formally for a second faculty for rebuilding the tower on modified plans. The Chancellor (Mr. Paul), while still expressing an opinion that an effort should be made to preserve the old tower, has intimated that, "rather than allow any discord prejudicial to the interests of the church to continue," he would be willing to grant a faculty to take down and rebuild the tower as it stands with one stage no more than 15 ft. in height added to it, and a vestry; the Norman arch of the tower to be preserved. If the Chancellor meets the wishes of the Vicar and his Committee as far as this, he will do well to have his faculty made out in definite and unmistakeable terms, and to have an inspection of the work kept up while it is in progress, as it is obvious that the Vicar and his party are determined to evade the faculty and destroy the old tower if they can. The Vicar stated, at the meeting at the Guildhall on the 17th, that "in his opinion they were not called upon to rebuild every stone of the present fabric, but that they would be able

to put up a tower such as they would be proud of." That, in plain English, appears to mean that after obtaining a faculty for rebuilding the old tower he intends to evade its conditions.

London Gas.

THE directors of the Gas Light and Coke Company have declared their intention of raising the price of gas to their consumers, although they already charge considerably more than either of the other two London companies. The Gas Light and Coke Company is by far the largest of the three companies, their Beckton works being the largest in the world, and it does appear remarkable that in a city like London, which has no district with a scarcity of gas consumers, that the largest gas manufacturers should charge the highest price. Mr. George Livesey, who is a shareholder in this company, in addition to being chairman of the South Metropolitan Gas Company, spoke very plainly at the last general meeting of the Gas Light and Coke Company. In effect he said that the present unsatisfactory condition of affairs was due mainly to mismanagement, and that it was high time that the present management resigned the reins to more competent hands. The proposed increase in the price of gas seems likely to meet with strong opposition from the consumers and local authorities concerned, and it will be interesting to learn what result outside influence can produce, taking into consideration the fact that the company are perfectly within their legal rights in raising the price, whether rendered necessary by mismanagement or otherwise.

The Future of Electricity.

ON Monday night, Professor Silvanus Thompson lectured on "Electro Motive Power" to a crowded audience at the Carpenters' Hall. Although the lecture was a popular one, yet by means of excellently designed models the lecturer managed to make clear such recondite subjects as polyphase apparatus and the transmission of power by three-phase currents. At the beginning of his lecture he gave a short history of the rise of central stations, and incidentally pointed out how the power station at Paddington, designed by the late Mr. J. E. H. Gordon, and which has been running for the last fifteen years, anticipated in many of its details the best modern practice. The alternators in this station are directly coupled to marine engines of a vertical pattern, and they are also fly-wheel alternators, having fixed armatures and rotating magnets. In addition, they supply two-phase currents, and this type of current is being adopted in the most recently designed American central stations. It is extraordinary, considering the many types of station plant that have been tried during the last fifteen years, that engineers should be reverting to the type of the first power-house in London. Professor Thompson gave many instances of the economy of replacing shafts and belts by electric motors. He stated emphatically that the electric lifts so much used in Germany and New York were much more economical than the hydraulic lifts generally used in London. The great progress that electric traction has made during the last ten years was well illustrated by stating that nearly ninety per cent. of the world's mileage of tramways (16,000 in 1897) was worked electrically. Before many years he expected that all the heavy railways in this country would be worked electrically. Steam locomotives can manage sixty miles an hour, but for speeds of 120 miles an hour the electric locomotive is an absolute necessity. He was certain that in the future the hard work of the world would be done electrically.

Modern Methods in Ancient Bridges.

THE ancient saying that there is nothing new under the sun is illustrated in a paper by Professsor Mehrtens, of Dresden, on "Ancient and Modern Bridge-building," published in the *Zeitschrift für Architektur und Ingenieurwesen*. The paper is a collection of noteworthy examples of bridges of all periods, with comments, and with twenty illustrations. It is sometimes supposed that suspension and cantilever bridges, if anything, may be considered the modern productions of civilised man; yet the Professor shows that "nature-folk" (to borrow the charming and convenient German expression) have anticipated both inventions. He illustrates a suspension bridge from the Caucasus, in which two accommodating trees take the place of the uprights, a rope of the chain, a few logs of the footway; and an ancient cantilever bridge from Japan, which differs from the modern examples chiefly in the fact that it is picturesque, while they are otherwise. The Chinese also made use, from a very early period, of the cantilever principle for bridges.

The Function of Trade Ornament.

IN the course of an excellent address at the conversazione and prize distribution of the Sheffield School of Art on Friday last week, Mr. Onslow Ford alluded in trenchant terms to the common use of bad ornament to cover up bad workmanship. He remarked that "because a thing was covered—or smothered—with bad ornament and sold at a cheap rate, the people bought it. It was a difficult thing to obtain a common article to-day with little decoration upon it. The cheaper it was the more it was covered with coarse decoration. This question was solved to him the other night by a manufacturer, who told him that the cheap articles had to be produced at such a quick rate and at so low a price that the covering of them with ornament served the purpose of hiding the defects of the construction underneath." That is just what we have been telling manufacturers for years past, at every opportunity; that bad ornament adds nothing whatever to the value of an article, but on the contrary detracts from it, and that a well-made plain thing is much better and of more value to all sensible people than one covered with bad ornament. At the same time it must be admitted that the majority of purchasers prefer the "ornamental" production, and the minority who know better have to suffer accordingly, both from the sight of the cheap ornament bought by other persons and placed in their houses, and from the practical impossibility of getting well-made plain articles for themselves.

Dorking Workhouse Infirmary Competition.

WE observe that in this competition, the result of which is reported under our usual heading on another page, the Guardians themselves selected ten out of a large number of designs sent in, and then, and not till then, called in a professional assessor to adjudicate on these ten. This is a method of procedure which ought to be protested against whenever it is adopted. It is a mere farce to call in an assessor to adjudicate on a portion of the designs previously selected by the Committee. The assessor ought to see the whole. For all that the Committee know, the designs which they have shut out from his inspection may include one which he would have recommended; and whether it be so or not, the competitors have a right to expect that they shall all be treated on an equal footing, and that if a professional assessor is called in he should see all the designs, and not a selection of them.

A German School Competition.

THE conditions of competition for a school building at Florisdorf, published in the *Wiener Bauindustrie-Zeitung*, are of some interest. There are to be twenty-eight to thirty class-rooms, two drawing-class rooms, two class-rooms for teaching women's work—sewing, &c.—a gymnasium, the usual superintendent's offices, store-room for teaching materials, and so forth. A kitchen and dining-room in the basement for poor children is also noted. Careful instructions are given as to materials, even the particular brickyard to be chosen being specified. This is one point in which the competition differs from those to which English architects are accustomed. Another is the publication of the names of the assessors, five in number; and still more striking are the duties required of these gentlemen. They are to form a judgment on each set of designs sent in, basing their final decision thereon; and these judgments are to be published, a copy is to be sent to each competitor, and they are to be displayed at the exhibition of the drawings. The architect who shall carry out the work shall be the prizewinner, or some one chosen with the prizewinner's full consent. This is a good example for English competition committees.

St. George's Union Infirmary, Chelsea.

THE Guardians of St. George's, Hanover-square, recently gave notice of their intention to acquire certain property for the alteration and enlargement of the infirmary attached to the Union in Fulham-road, Chelsea. The scheduled premises comprise Nos. 391-395, in the main road (owned by the Carpenters' Company and others), and Nos. 11-22, Victoria-grove, belonging to Mr. R. Gunter, Mr. J. Gunter, and Mr. W. E. Maude. The site possesses some interest; for in 1787 the parish of St. George bought Shaftesbury House from William Virtue as an additional workhouse, and an Act in that behalf declared the house and grounds to be in St. George's parish so long as it should serve that purpose. That house, notable for its interior and charming old-fashioned garden,* was purchased by the third Earl of Shaftesbury, author of "Characteristics," in 1699, from the Bovey family, heirs of the widow of Sir James Smith, who it is supposed built it in 1635. Here Lord Shaftesbury built himself a library and cultivated vines and other fruit trees. In 1710 he sold the property to Narcissus Luttrell, the famous tract and book collector. The property, together with Luttrell's collection, passed to Edward Wynne, author of

* See the cuts in the "Art Union," 1848, and those, by F. W. Fairholt, in Croker's "Walk from London to Fulham," edit. 1860.

various legal works, who died there on December 27, 1784. His brother, the Reverend Luttrell Wynne, of All Souls, Oxford, succeeded to the house, and to the library collected by Luttrell, his brother, and his father Sergeant Wynne. He alienated the house to William Virtue, above-mentioned, and the contents of the library were sold at Sotheby's, 1786. Some maintain that the house had been the home of Boyle, the philosopher, where, in Little Chelsea, he was visited by Evelyn, Sir Robert Murray, and Locke. Shaftesbury House remained until 1856, when it was pulled down for new workhouse buildings.

The "Red Lion," High Holborn.

THERE has just been pulled down this old-established inn which gave a name to the street at whose corner it stands, as well as to the adjacent Red Lion-fields (now square). It is cited in Howes' edition (1631) of Stow, and adjoined the "Blue Boar"—the "George and Blue Boar" stood directly opposite. The bodies of the regicides were taken from Westminster Abbey to the "Red Lion," and thence, it is commonly said, to Tyburn. The "Respublica" of Sir J. Prestwich avers that "Cromwell was buried in a small paddock near Holborn, in that very spot over which the obelisk is placed in Red Lion-square." The square was laid out in 1698; the garden was opened to the public on August 10, 1885, at the charges, 250*l.*, of the Metropolitan Public Gardens Association, on a lease by the trustees.

Proposed Monument to Jane Austen.

THROUGH a letter in the *Times*, signed by Lord Northbook and others, the public are invited to send in subscriptions not exceeding five guineas to the care of Messrs. Hoare, 37, Fleet-street, towards a memorial window to Jane Austen, to be inserted, with the approval of the Dean, either in the nave or Lady Chapel of Winchester Cathedral. Jane Austen lived for some little time at Winchester (the house in which she stayed is, if we remember right, distinguished by an inscription); she was buried in the cathedral precinct, but there is no monument to her in the cathedral beyond a brass tablet let into the wall, placed there in 1870. Sympathising entirely with the desire to see an adequate monument to Jane Austen, one of the most remarkable writers England ever produced (Tennyson ranked her as in some qualities "next to Shakespeare"), we should prefer to see an architectural and sculptured memorial rather than a window, because we do not see how any design suitable in type and spirit for stained glass could also be suitable as a memorial to Jane Austen. One cannot in any way associate the idea of stained glass or ecclesiastical decoration with her type of genius; the two ideas are incongruous. A sculptured monument could be treated in a freer spirit, and would be much more suitable. We should like to see what Mr. Onslow Ford would make of it.

KENSINGTON GRAMMAR SCHOOL.—Under a scheme of the Charity Commissioners, this school, in Kensington-square, and founded in 1873, will be entitled the Kensington School of Science and Art, and be enabled to obtain grants from the Science and Art Department, as well as from any local authority under the Technical Instruction Acts. The tuition fees for the pupils (boys) will range from one to three guineas per term.

THE FLORENTINE RENAISSANCE.*

BY PROFESSOR AITCHISON, R.A.

IN my last lecture I spoke of Brunellesco and Alberti, the two great founders of the Florentine Renaissance, and I think it will be well just to mention the names of a few of the celebrated architects who came between Alberti and Bramante. However, I shall mainly dwell on those semi-architectural works, that were sometimes done by the sculptors and sometimes by the architects, that give us so deep an insight into the elegancies and beauties of the Renaissance, and charmed the contemporaries of these men, as they charm us now by the beauty and refinement shown in their works; though in fact most of the sculptors were architects as well. I will, however, just mention one or two of the well-known architects before touching on the sepulchral monuments.

Michellozzo (1391-1472) was looked upon as the most regular architect after the death of Brunellesco, and was a great favourite with Cosimo dei Medici, for whom he built the Medici Palace, now called the Palazzo Riccardi.

Benedetto da Majano (1442-1497) and Cronaca (1455-1509) built the rival Palace of the Strozzi.

Giuliano and Antonio da San Gallo (Giuliano, 1445-1516; Antonio, 1455-1534), the wood carvers, although very able as architects, do not seem to me to have given a sufficient stamp to architecture to make their works of sufficient importance to be noticed in a short abstract, until the days when Giuliano was appointed one of the head architects of St. Peter's.

Antonio Filarete, statuary and architect, built the hospital at Milan, and is supposed to have furnished in his MSS. book much information to Vasari.

The first monument I give you is the Gothic one of *Can Signorio della Scala*, by Bonino da Campiglione, 1375, in the cemetery adjoining the Church of Santa Maria Antica at Verona. I have given you this Gothic one, because it shows the great difference in grace and style between it and the next one, which was only thirty-eight years later. I give you these Renaissance monuments of the fifteenth century to impress more strongly on your minds the grace and elegance that had been introduced by the study of the antique.

The next one that I give you is Renaissance, and is the effigy of *Ilaria del Carretto*, by Jacopo della Quercia (1374-1438), 1413, in the Duomo, Lucca. This monument consists of a large oblong marble chest, standing on a highish base; the vertical sides of which, between the base and the capping, are ornamented with winged Cupids supporting huge festoons of fruit and flowers, and you will observe the great variety of action in the Cupids to prevent monotony. On the top of this chest Ilaria del Carretto lies at full length, with a turban-shaped cap and a very high collar to the dress. The head rests on two pillows. She was apparently a young woman of delicate features, but a part of the face, particularly the nose, has got slightly damaged; the hair shows a little below the cap, and is bound round with narrow ribbons. It is rather an example of sculpture than of architecture, but you will observe a grace and suavity about it which removes it far away from the monument to Can Signorio only executed thirty-eight years before.

The monument to *Leonardo Bruni*, who was one of the humanists of the fifteenth century, was executed by Bernardo Rossellino (1427-1478), in 1444, and is in Santa Croce, Florence. It has much greater architectural pretensions than the one to Ilaria. On a high plinth, whose central portion is carved with Cupids supporting festoons, and with a lion's head in the centre, stand the pilasters supporting the arch which forms a canopy over the sarcophagus and the effigy. On either side are two Corinthian pilasters with a Renaissance variety of cap. These support a piece of entablature that returns on the back of the tomb. The architrave of two fascias has carved mouldings, and the frieze is ornamented with floral ornament nearly covering its whole surface; the cornice above has also carved mouldings, and on its top supports a deep semi-circular arch, the fascias of whose archivolt form a sort of architrave, frieze, and cornice; the cornice and the architrave have carved mouldings, and what may be called its frieze is nearly covered with one of those cables of leaves formed round a centre stem and bound together outside. Over the centre of this archivolt are two Cupids holding a medallion with a cabled rim of leaves, which has in its centre a shield carved with a rampant lion. Between the pilasters and just above their base is the base of the sarcophagus supported on stands whose ends are carved into lions' heads and claws; the sarcophagus itself has a shallow cornice, with the main body panelled. In the middle is a large engraved slab occupying nearly the whole height and about half the length. This inscribed slab is supported by two flying genii; on the top of this sarcophagus are the supporters of the bier. The fronts of these supporters of the bier are carved with Roman eagles—the embroidered pall hanging partly over the supports and partly between them. On this is the recumbent figure of Leonardo, with his head supported by a pillow; the wall at the back of the bier is divided into three panels, and each panel is formed of a slab of purple porphyry. Above the main top rail is the architrave of the entablature; above the cornice and below the arch is a frame enclosing the lunette, the centre of this is filled with a medallion on which is carved Madonna and Child. The medallion itself is supported by two kneeling figures. The whole monument is of rather narrow proportion and is highly ornate; from the care which has been taken to keep the carving flat, this ornateness is not overpowering.

The monument to *Carlo Marsuppini*, also in Santa Croce, was designed and executed by Desiderio da Settignano in 1453. Desiderio was the favourite pupil of Donatello, and was looked on by his contemporaries as a heaven-born genius; born 1428 and died 1463. This monument greatly resembles the one to Leonardo Bruni. It consists of a semi-circular arch supported on the projecting ends of an entablature over two Corinthian pilasters. These pilasters stand on a high pedestal with a base and cornice and a very deep plinth; the dado of the pedestal has winged figures at each angle, and a vase in the middle, from which depend two festoons with floating ribbons. On the angles of these pedestals and at the feet of the pilasters stand two naked Cupids supporting shields. The entablature has its architrave covered with enrichment, and also the frieze above; the carving of the frieze is rather deeper than that of the architrave; the cornice has its mouldings carved with dentils; the archivolt of the semi-circular arch mainly consists of a plain face with a border and slight capping above, and is filled with bunches of fruit and flowers. In the lunette beneath the arch is a medallion with Madonna and Child supported by two figures in the spandrels. Below the entablature are four panels with moulded rails and stiles, the panels being of purple porphyry. The sarcophagus stands on a high plinth, and is supported by lions' paws at the ends, and by a shell in the middle of two wings in the middle. From the lions' legs foliage springs, with pierced spirals on the angles and other spirals against the end of the tablet that bears the inscription. The roof of the sarcophagus is covered with scales and on this rest the supporters of the bier. The bier is covered with a richly embroidered pall, and Marsuppini is lying on his side, so that his face is seen from the choir. On the centre of the arch is a vase with an elongated neck, and from this festoons depend, touch the back of the arch and are supported on the shoulders of youths standing on the top of the entablature; the wide ends of these festoons hang down nearly to the level of the effigy.

The proportions of this monument are rather more graceful than those of the former, and the back being divided into four panels instead of three gives a much better effect. Each of the children with the shields has all the charm of a shy child. The pierced scrolls of the sarcophagus are some of the most marvellous work that is to be found. There is one with similar pierced scrolls at San Francisco at Assisi. A full-sized cast of this, as well as of that to Ilaria, are at the South Kensington Museum.

There is a lovely tomb to *Barbara Ordelaffi* in San Giralomo, Forli, erected in 1466; the artist is unknown. This monument is rather more complete in its architecture than the former, for it is crowned by a cornice, the

* Being the fourth Royal Academy lecture on Architecture this Session. Delivered on Thursday afternoon, February 10.

spandrels above the arch being filled in and adorned with Tuscan shields in the shape of horses' skulls. I may note that the architectural rigidity is taken off by the looped, damasked drapery above the effigy.

There are two monuments in la Badia at Florence, by Mino da Fiesole (1431-1484), Desiderio's favourite pupil and imitator; the one to *Bernardo Guigni* has not quite the exquisite grace of those mentioned before, nor of Mino's other monument to the Marquis of Tuscany, the porphyry slabs and inlays being a little overdone, the proportions not being quite happy and the ornament rather stiff.

In the one to *Ugo, Marquis of Tuscany*, of 1472, there are also two charming little naked children with shields, standing on a base, and instead of a central porphry slab as in the one to Guigni, this has a white marble panel with Madonna in front, with a distaff in her right hand and the Bambino on her left arm, while another child is trying to climb on to her knee. In the frieze are three shells, one at each end, and one in the middle, from each hang two light festoons of leaves and fruit, over the carved architrave; the curved lines of the festoons and their irregular outlines take off the rigidity from the monument, while these curves are echoed by the folds of a looped curtain below, and the stiff flutings of the pilasters are contrasted with the conical folds of the curtains and the slanting lines of their bordered ends. The whole monument is a masterpiece of proportion, of composition, of exquisite ornamentation, of monumental colour, and of perfect execution. The last time I saw it was in company with Cavaliere Costa, the Roman artist, who was still enchanted with his last view.

In the Cathedral of Lucca there is a beautiful tomb to *Pietro da Nocelo*, secretary to Nicolas V., by Matteo Civitale, (1435-1501), in 1470; but I think those monuments to Marsuppini, to Barbara Ordelaffi, and Mino da Fiesole's tomb to the Count of Tuscany, bear the palm.

I have dwelt on these semi-architectural monuments partly on account of their exquisite perfection, and partly to make clear the new sense of grace that had begun to pervade the arts and to charm society; for there is nothing to equal them in that style, as far as I know, except the exquisite doorway of Santa Maria dei Miracoli, at Brescia, whose architect is said to have been Ludovico Beretta, in 1487–90.

After the monuments I must say a few words about Bramante's influence over the revival, which was so very strongly marked that I think he may be looked on as the third great typical architect of the style. One of his inventions was a rhythmical arrangement of the pilasters on the fronts of buildings, instead of using them singly at nearly equal intervals. Without exactly coupling them, he made one space narrow and the other one wide, as may be seen at the Cancellaria at Rome.

I by no means wish to restrict his gifts to this one peculiarity, but it certainly was a peculiarity which is more easily recognised than anything else he did, although his great gift to the Renaissance was a new and more delicate sense of proportion that marks all his work.

Another of Bramante's inventions is best exemplified by the doorway of the Cathedral at Como. The door-opening itself, which is a trifle squat, is raised in height by its entablature, supported on two pilasters. On either side of these pilasters are two stories of niches containing statues, and then another pilaster; the head of the doorway is circular and blank, the lunette over the doorway has the Flight into Egypt carved on it, and the outer zone is divided into panels by radii, each panel containing a sculptured figure. This is finished by a narrow archivolt, flat in section and highly ornamented, and from the extreme edges of this, the doorway is carried up square, with a triangular pediment. Another charming solution of a difficulty is in the cloisters of Santa Maria della Pace at Rome. The lower story consists of an arcade with Ionic pilasters on pedestals in the middle of each pier. These pilasters support the entablature, and above them is a solid parapet. Over the pilasters below are Corinthian pilasters, also supporting an entablature, the frieze of which is filled by the cantilevers that support the cornice, and between the main pilasters are slender columns with capitals; the whole composition being original, simple, and effective. Beside the Choir and Dome of Santa Maria delle Grazie at Milan, we owe to him the original design for St. Peters. Bramante had made a particular study of graceful proportions, and to perfect this he had studied with great accuracy the proportions of the human form as well as that of the horse. He was not only one of the most versatile of the Renaissance artists, but had that great gift of having all his knowledge and faculties at his fingers' ends, for it is said of him that whatever any one wanted, Bramante could always give a sketch for it at the moment. He initiated into the art Raphael, Baldassarre Peruzzi, Antonio da San Gallo the younger, and many others, and both from the remarks of his contemporaries and our own observation we may look on him as the greatest architect of the Renaissance; for it is difficult to say how much Raphael, Peruzzi, and Antonio da San Gallo owed to him in their subsequent designs. Hard things have been said about him in connexion with Michelangelo, but it is not unlikely that the great architect of the Renaissance was not an admirer of Michelangelo's architecture, and his introduction of the great Raphael to the Pope, was not altogether pleasing to the surly genius of Michelangelo. Bramante lived to the age of seventy, but during his latter years he was much troubled with gout and palsy in his hands.

I trust the students who are ambitious will not neglect the study of Bramante's works, and particularly of the grace and dignity which he imparted to all his works, for I am sorry to see that there is a great want of style, proportion and monumental dignity about the work of our most advanced students.

It is comparatively easy to captivate the vulgar eye by boldness, and even by coarseness; but to those who really know, nothing can confer so much dignity as lovely simplicity and exquisite proportion.

I know only too well the many distractions that beset the architect, the learning to plan, to construct, to shape the parts, and to design, to perfect himself in any one of which may occupy a clever man's whole life, but the ambitious student of genius should consider what his great predecessors in our art have done. All the great Renaissance architects were either painters or sculptors as well, and were proud of their versatility, and at least understood enough about construction to make their buildings stand. F. Francia put *goldsmith* on his pictures, and probably *painter* on his plate. I am sure that enough study of the works of the past is not given by the architectural students of the present day. Think of the laborious studies of the painters, the years it takes them to learn to draw the human figure, the studies they make of the great pictures of the past, and consider, too, the studies of the poets, that Tennyson learnt Hebrew to see if he could discover the means their poets employed to raise emotions. Architecture is not a money-making art, but one that may confer immortality on the architect, and bring admirers from the whole world to his country.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of this Institute was held on Monday evening at No. 9, Conduit-street, Mr. H. L. Florence, Vice-President, presiding.

The minutes of the last meeting having been taken as read, a paper entitled "The Mediæval Campanili of Rome" was read by Mr. J. Tavenor Perry. The lecturer, in remarking on the well-known character of these towers, and the fact that so little was known of their history or had been written about them, showed the urgent necessity of some detailed record of them, since already many had disappeared, and all were falling into a state of serious dilapidation. After giving a list of the campanili still standing, he pointed out that tower-building was a tradition of Roman classical times, and mentioned those built by Pliny, Augustus, and Diocletian, and representations of those which have been found, particularly that on a ceiling discovered in the Farnesina gardens by Professor Lanciani. The first recorded erection of a bell-tower in Rome is that of St. Peter's, in the middle of the eighth century, which was restored by Leo III. a few years later. In giving an abstract of the principal events in Mediæval Roman history, as related by Gregorovius, an attempt was made to show that only during very limited periods were building operations possible in Rome, and that the most important of these was the time of Leo the Fourth, after the repulse of the Saracens. The details of the construction and decoration of the towers were described in relation to their likeness to or divergence from classic examples, particularly in reference to their arcades; and an attempt was made by a comparison between these and the windows of some English towers known as "Saxon" to establish the theory of their early date. He said, "whence did the Saxons derive their ideas on this subject? Not from the scanty vestiges of antiquity still remaining in the island, not from France or Germany, where such feautures were unknown; but from the only place where they could by any possibility exist—Rome itself. Alfred the Great, entering S. Peter's for the coronation of his father, Ethelwulf, had before him the great campanile of Stephen and Leo, and, when leaving, from the steps of the atrium he may have seen the campanile of S. Michele of the Saxons in the Borgo, much as we see it now." A comparison was further made between the dated examples of towers both in north and south Italy, such as those of Milan, Amalfi, &c., with a view to show that the Roman examples were of an earlier date. The niches on some of the towers were described, and it was suggested that these were not intended for statues, but to shelter sacred paintings, of which great numbers reached Rome from Byzantium in the time of Leo the Iconoclast. The majolica decorations were mentioned as indications of date, those on SS. Giovanni e Paolo being assumed to be coeval with the tower, and painted for the position they occupy. In conclusion, an account was given of the state of dilapidation into which most of the campanili had fallen, and the damage which had been done to them by injudicious restoration or repair. The paper was illustrated by pen-and-ink drawings, by the author, of the towers and their details, most of which are reproduced in the Institute *Journal*.

Mr. Phené Spiers, in proposing a vote of thanks to the lecturer, said that Mr. Perry endeavoured to prove his argument by three courses of reasoning. The first was the historical one, with regard to which he had had the great advantage of coming across a book by Herr Gregorovius, translated by Mrs. Hamilton, which, from the extracts he had taken, seemed to be very carefully done and most interesting. It was almost the first time we had had a careful inquiry into this question. Mr. Perry had already pointed out how it had been neglected by every one, and the few extracts given by the lecturer showed that there were ample records to prove the contrary of what had been generally accepted, namely, that these towers were only of the eleventh and twelfth centuries, and the historical record, so far as it was taken from that author, was, he (the speaker) thought, fairly satisfactory. Then the second course of reasoning was what might be called the rationale of the subject. They knew perfectly well that bell towers did exist, and that there was one existing at S. Appollinare in Classe, at Ravenna, which was of the sixth century, of which there was not any possible doubt. It was a lofty tower, the lower portion being without any openings, or openings of a very small size, and the upper portion with windows similar to those shown that evening. Mr. Perry had not been able to find out exactly in what way the window was divided, whether by a capital with columns or not; but, at all events, there was in the sixth century a very lofty and important bell tower existing in Ravenna, and it seemed curious that they should have to wait till the eleventh and twelfth century before they found a bell tower in Rome. There might have been bell towers which had been destroyed since, and Mr. Perry had pointed out the troubles that there were in Italy in the seventh and the greater portion of the eighth century, which might have rendered it difficult to build any there; and it was not really until about the time of Charlemagne that affairs settled themselves down, and they were able to go on building. It was about this period to which Mr. Perry ascribed some of the campanili which he had described that night. There was another question which Mr. Perry had suggested in his paper, namely, the destruction that took place by the Saracens and Normans and others; and the question was whether, as they burnt all the churches, they allowed such lofty towers to exist still. That was a point which might have brought these other authors, Cattaneo Fergusson, and others, to the idea that they must have been all destroyed, and that these were later restorations. Then Mr. Perry, in his third course of reasoning, spoke of certain features. As regards the

pottery, it was a question for an expert, and, not having seen the plates, one could not judge as to what period they were likely to belong to. If it were any satisfaction to Mr. Perry to know it, one of the designs he had exhibited was certainly of Byzantine origin, and therefore it was extremely possible that it might have been brought from the East. Then, as to the wall shaft and the division, there he found it rather difficult to follow Mr. Perry, because he had called a feature which he (the speaker) looked upon as a "dosseret" or "block" above the capital a "capital" frankly. That depended upon what one understood by a capital. By a "dosseret" he meant an architrave block invented by the architect to carry an arch of greater width than the columns. The Byzantine architects always reckoned that the column, being of one material, was capable of supporting a much greater weight than a pier of equal area, and in order to place their arches upon the small column of this cap they were obliged to introduce an intermediate feature. That intermediate feature might have been a corruption of the architrave block, but it had always seemed to him to be a feature that reasonable people would design for that purpose, that was to say, for carrying a wall very much wider than the column below. It did not matter whether they called it a "capital" or a "dosseret," but it was one of the important elements of Mr. Perry's argument to prove that that feature was introduced without the capital underneath; and he quite agreed with him that this was an instance, and a singular instance, of an absence of the well-known features in those early examples. They knew it had been copied in this country in Saxon periods, and the absence of a cap was an argument considerably in Mr. Perry's favour. He did not quite understand Mr. Perry's reference to the arches in the Palace of Diocletian at Spalato, which he seemed to take as the first example of that. The fact was that as soon as the architects got out of Rome they were fond of indulging in that which had been taking place lately in this country, namely, in the designing of Free Classic. They were no longer bound by the precepts of Vitruvius; and the anomalies, and alterations, and changes which they introduced in the architecture of the East and Dalmatia were such as would not be tolerated in Rome. These brackets carrying shafts, which carried architraves, were one of these vagaries which the Free Classic gave them. At St. Demetrius, Salonica, the capital was designed in that form—in fact, it was moulded at the two ends and not at the sides. It was a Byzantine idea that might have been taken from St. Apollinare in Classe. There was another feature which one was supposed to find in Spalato as the first example, but which he endeavoured some short time ago to prove was found at a much earlier date in the East in an arch in Damascus. That arch at Damascus was certainly of the age of the Antonines, and had two niches on each side of the doorway, which were flanked by two shafts bearing capitals with entablatures over them, and the whole of the entablature was moulded round the niches—the first instance that we knew of, of the daring change of taking the entablature right round the opening. Mr. Perry's theory accounted for all those features that they found in Saxon work. Mr. Perry had alluded to three or four of the Saxon churches. There was one that he (the speaker) visited only the other day—the church at Worth. During the restorations a few years ago they came upon the original Saxon windows, and these windows were identically the same as the windows in St. Maria in Cosmedin. They were probably representations similar to other features of the kind. There were others at Sompting, and elsewhere; and though the copy was a rude and commonplace one, it must have had an origin, and it seemed that the only origin it could have had was the one at Rome. That explained the work in the Saxon churches to him so clearly that, if it were for that reason alone, he should be inclined to accept Mr. Perry's reasons and argument.

Mr. H. H. Statham seconded the vote of thanks to Mr. Perry for the very useful paper which he had read, and which had given some of them some new information.

The Chairman, in putting the vote of thanks to the meeting, said they sent out every year as a travelling student the gainer of the Soane Medallion, and it might very possibly be thought that they had read and learnt and seen illustrated and photographed all that there was to be seen now in those foreign travels; but they had learnt from Mr. Perry's paper that there was really yet a great deal more to be learned from the architectural study of buildings. They had only taken what some persons writing upon the history of architecture, or some guide-book, had stated to be the fact, and without due examination. Mr. Perry had shown that even upon subjects like the Campanili of Rome, a subject upon which they all thought they were well acquainted, there was yet a great deal to learn.

The vote of thanks having been carried unanimously,

Mr. Tavenor Perry, in reply, said in reference to the dosseret Mr. Spiers did not exactly explain the difference that there was between it and the Roman corbel capital; the drawing of the Schwartz Reindorf showed what Mr. Spiers called an elongated dosseret. The Roman example differed absolutely from those German examples as from the Byzantine, in that there was no capital whatever intervening between this (call it the dosseret for the sake of argument) and a shaft underneath it. And that was the extraordinary likeness between the Campanili in Rome, Albano and Tivoli, and those of Saxon work like Sompting. There was something in Subiaco in the cloisters, which was very like it, with a shaft very elaborately carved coming immediately underneath it; but it was worked two centuries later. He thought that the question of the dosseret was a very important argument in his favour.

The Chairman said that a special general meeting would be held on the 7th prox., to elect the Royal Gold medallist, to be followed by a business meeting for the election of members.

The meeting then terminated.

ARCHITECTURAL SOCIETIES.

THE EDINBURGH ARCHITECTURAL SOCIETY.—At a meeting of this Society, held in Dowell's Hall on the 16th inst.—Mr. Wm. M. Cumming, President, in the chair—a paper was read by Mr. J. E. Forbes, entitled "Normandy." Mr. Forbes gave an account of his tour, and sketched the general characteristics of the towns in Normandy, especially pointing out the peculiar beauty of colour pervading the landscape. Rouen was specially mentioned as being exceptionally artistic, showing fine examples of fourteenth and fifteenth century architecture. Passing on to Lisieux, Mr. Forbes mentioned the timber-framed houses as worthy of notice, comparing favourably with similar work in Chester. The paper was illustrated by limelight views.

CARDIFF, SOUTH WALES, AND MONMOUTHSHIRE ARCHITECTS' SOCIETY.—The annual dinner of the Cardiff, South Wales, and Monmouthshire Architects' Society was held on the 19th inst. at the Angel Hotel, Cardiff, the guests including Professor Aitchison, R.A., Mr. Lanchester (one of the successful competitors for the proposed municipal buildings in Cathays Park), the Mayor of Cardiff (Alderman Ramsdale, J.P.), and others. The chair was occupied by the President of the Society (Mr. C. B. Fowler), who had designed a frontispiece for the toast list and menu card. Following the loyal toasts, Mr. E. W. M. Corbett gave the toast of "Our Pastors, Legislators, and Defenders." Captain W. H. D. Caple acknowledged the toast chiefly on behalf of the Volunteer branch of the service.—Canon Thompson, D.D., submitted the toast of the evening, viz., "The Local Society and the Royal Institute," and expressed the hope that after this lapse of three years the annual dinner would be continued in its proper course. They would have pleasure in seeing the local society thrive, and in seeing the Royal Institute also succeed. After referring to architecture as being, next to literature, the most eternal of the arts, the rev. gentleman advised a close study, and the acceptance, of the Renaissance style as compared to the Gothic, because of its perfect symmetry and exquisite proportion.—The Chairman, in the course of his reply, dwelt upon the condition of the South Wales Society, which was formed in 1890. Although the membership had decreased from twenty-eight to eighteen last year, he was pleased to state that from the number of applications and the various letters of inquiry they hoped that in a short time it would be greatly increased.—Professor Aitchison, R.A., also responded, and at the outset expressed the gratification of himself personally and of the Institute at the invitation accorded him to visit South Wales for the first time. It was the duty of local societies (the Professor declared) to follow the particular forms in architecture that were most suitable to the districts in which they resided, because the buildings must be associated in some form or other with the scenery and surroundings. The Royal Institute had done a great deal, and hoped to do more, in the direction of gaining an intimate knowledge of the architecture in different parts of the world, and its Examination for Associates was most valuable, and he was pleased when in Brussels recently to hear the encomiums passed upon the standard and character of the work of these Associates. The ideal of architects was to make their buildings as Nature made her works, and while making them beautiful yet endow them with a strong character. The charms that could be added to architecture were such that no effort was too great, in his opinion, for those who possessed the genius to bestow it upon their country. The greatest makers of architecture provided examples at a time when the people were trying to give the greatest attention to form and character, and most of these were in temples built to their gods. If the lessons thus taught were added to the lessons taught by Nature they must make an immense advance. Before long he believed that the younger generation of architects would suddenly burst forth into an enthusiasm that England had never before seen, and with the Divine gift of genius would spare no time to bring it forth, so that England might be like Greece, Rome, Italy, and France—a place where the people came to admire that which is high, noble, and beautiful. In conclusion, he again hoped that England would be one of the countries that people from all parts of the world would visit to see how its high expressions of beauty and utility are cultivated.—Mr. Lascelles Carr submitted the toast of "The Governing Bodies," in the course of which he said that he believed there was a higher and more important trait that should be observed by architects than to "design in beauty and build in truth," and that was to build with purpose. Referring to the Cathays Park site the speaker said it afforded for architects natural advantages which no other town could possibly provide, and it behoved the Corporation of Cardiff to leave no stone unturned, and to grudge neither money nor time, in preventing the erection of any architectural monstrosity upon it to provide an everlasting scandal.—The Mayor (Alderman Ramsdale), the Deputy-Mayor (Alderman D. Jones), and Mr. Lewis Williams replied to this toast.—Mr. Edwin Seward submitted the toast of "The Master Builders," which was replied to by Mr. J. E. Turner (President of the Master Builders' Association.

LIVERPOOL ARCHITECTURAL SOCIETY.—At the meeting of the Architectural Society of Liverpool, in the Law Library in Union-court, on the 21st inst., Mr. F. E. P. Edwards read a paper dealing with the origin and the external and internal development of St. George's Hall. On the proposition of Mr. George Bradbury, seconded by Professor Simpson, of University College, a vote of thanks was conveyed to Mr. Edwards for his paper. Mr. W. E. Willink, President of the Society, occupied the chair.

COMPETITIONS.

WOLVERHAMPTON NEW FREE LIBRARY.—Mr. Waterhouse, the assessor appointed in the competition for the Wolverhampton New Free Library which is to be erected as a memorial of the Jubilee, has placed first the design sent in by Mr. H. T. Hare, A.R.I.B.A., Adelphi, London; the second premiated design being that of Mr. J. M. Brydon, F.R.I.B.A., Newman-street, London. The first premium is 100 gs., the second 50 gs.

NEW CHURCH AT SPARKBROOK.—The trustees of the Birmingham Churches Fund have appointed Sir Arthur Blomfield to act as their assessor in the competition for a new church in the parish of Sparkbrook, in place of Christ Church, Birmingham. The following is the list of architects to whom invitations have been addressed: Messrs. Bateman & Bateman; W. H. Bidlake, J. A. Chatwin, R. Creed, J. Douglas, W. Henman, H. E. Lavender, M. Macartney, E. Mansell, Temple Moore, F. B. Osborn, and T. F. Proud.

WORKHOUSE INFIRMARY, DORKING.—In response to the invitation of the Guardians, a large number of designs for this building were submitted. The Guardians selected ten

of these, and appointed Mr. Edmeston, assessor, to make the final decision. He has awarded the premiums as follows: 1. Mr. H. Percy Adams, Woburn Place, W.; 2. Mr. J. H. Cossar, Stamford, Lincolnshire; 3. Mr. Clarence Coggin, Adelphi, W.C.

MUNICIPAL BUILDINGS, BARNSLEY.—At a recent meeting of the Barnsley Town Council, the Watch and Streets, Buildings and Improvement Committees recommended for approval the following recommendations of a sub-committee of the two-named committees:—That municipal buildings be erected on the site in Eldon-street and Kendray-street, at present occupied by Messrs. Robinson & Sons' works; that architects be invited to submit competitive plans of municipal buildings; that the Borough Surveyor be instructed to prepare instructions and plans of the site for competing architects: and that the architects submitting the plans adjudged to be first, second, and third in order of merit be awarded premiums of 100*l.*, 50*l.*, and 25*l.* respectively, the premium of 100*l.* (in case the architect obtaining it be instructed to carry out the work) to form part of the remuneration of such architect for carrying out the work.

HARROGATE TECHNICAL INSTITUTE.—At a meeting of the committee of the Harrogate School of Art, the report of Messrs. Woodhouse & Willoughby, architects, of Manchester, on the competitive designs for the new school, was considered. The committee awarded premiums of 20*l.*, 10*l.*, and 5*l.* respectively, in accordance with the report issued by the assessors, as follows:—1. Mr. W. J. Morley, F.R.I.B.A., architect, Bradford and Harrogate; 2. Messrs. Bland & Brown, architects, Harrogate; 3. Mr. J. E. Marshall, architect, Harrogate. A site has been secured for the school at the corner of East Parade and Haywra-crescent.

ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—The sixth meeting of the session of this Association was held at 32, Sackville-street, Piccadilly, on the 16th inst., Mr. Blashill, Hon. Treasurer, in the chair. Mr. J. Chalkley Gould exhibited a pack of playing cards printed at Besançon in the latter part of the last century. The Chairman exhibited a small bag worked with silver thread, which contained a deed, being the conveyance of land, with the impression of the seal affixed, the date being the 31st of Ed. I., and he also exhibited a receipt on paper for money paid to Mr. Abraham Gould, dated 1610, who acknowledged it as a receipt in full from the beginning of the world. The paper of the evening was by the Rev. W. S. Sach-Szyrona, M.A., on "Australian Lights on Britain in the Later Stone Period." The scope of the paper was entirely anthropological, and a report of it does not therefore come within our programme. The Hon. Secretary, Mr. Patrick, read some notes descriptive of a sketch sent by Mr. J. T. Irvine, received from the Rector of Bassingham Church, Lincs, of a curious early font discovered below the floor when the church was restored. It is oblong in shape, 2 ft. long and 1 ft. 5 in. wide, and 10 in. thick. The font has on one face interlacing knotwork and cable moulding of uncommon design, and has apparently been formed out of the socket stone of a still older churchyard cross.

CENTRAL ASSOCIATION OF MASTER BUILDERS OF LONDON.

THE twenty-sixth annual general meeting of the Central Association of Master Builders was held at the offices, 31 and 32, Bedford-street, Strand, W.C., on the 10th inst., the President, Mr. Wm. Shepherd, in the chair.

The notice convening the meeting having been taken as read, the minutes of the previous meeting were read and confirmed.

It was proposed by the Chairman, seconded by Mr. Geo. Hailes, and resolved, "That the following report be received and adopted":—

1. The Council, in submitting their twenty-sixth annual report, are able to state, from information received from members of the Association and the various official returns, that business continues good and that future prospects in this respect are satisfactory.

2. Since the last report was issued an agreement has been concluded with the labourers, which was then in abeyance, the particulars of which were at the time furnished to members.

3. Requests for working rules and to fix a standard rate of wages by the Painters and Decorators' Societies have not been concluded, as upon investigation it was apparent that work in this trade was so varied and complicated in character, and also the degree of skill and efficiency required in the workman so unequal, that if anything was done, to do it fairly it needed a careful classification both as regards the work and the workman, and precluded the possibility of adopting an uniform rate of wage; even if this could have been accomplished, it would not have satisfied the applicants, whose object was to establish an uniform minimum rate of wage. The Council offered to discuss working rules, leaving out the question of wage altogether, but the representatives of the societies declined this, and the negotiation thereupon ended.

4. A similar application was received from the Engine and Crane Drivers Union, but having regard to the smallness of their numbers and limited employment it was considered advisable to obtain information from the firms employing them as to what was the custom or practice; this was found to be so varied both in regard to wages and conditions of employment that it was decided it was inexpedient to accede to the application, and the applicants were so informed. It is hardly necessary to add that these workmen must of necessity conform to the working rules of the other trades when engaged upon building or engineering works, and a separate agreement in this respect is unnecessary, and the varied character of their employment renders an uniform standard rate of wage impracticable.

5. Notwithstanding the agreements concluded with the several trades unions, and the inclusion in all of these of a conciliation clause with a view of reducing friction and putting an end to frivolous disputes, the Council regret to say that they find members are still subjected to vexatious and tiresome experience in the conduct of their businesses, as the Council have constant complaints of the conduct of the workmen, and breaches of not only the spirit but the letter of the rules.

6. Petty strikes of plasterers have occurred in a number of firms, and the remonstrances of the Council and Committee have been either met by evasions or the *non possumus*, and though no serious inconvenience has resulted, undoubtedly loss and annoyance have been inflicted.

7. The same observations apply to the bricklayers. An effort was made to remove a constantly-recurring trouble by getting them to admit the inutility of their objections to tilers doing roof tiling. The plumbers appear anxious to emulate the plasterers and bricklayers in giving trouble, and are equally unreasonable when being dealt with.

8. The conduct of all the trades appears to be determined by consideration more or less Socialistic and Communistic and without any regard to the reasonable and proper relationships which should exist between employees and their employers, and the entire absence of any recognition of the obligations on the part of the former to give a fair day's work for the wages received, but, on the other hand, to rather regard what they get from the employer as lawful plunder. It would be unfair to apply these observations to the individual workman, but it does not unfairly illustrate the result of the operation of the labour organisations in the so-called relationship with capital and labour. It is unfortunate that politicians of all shades of opinion at the present time appear to vie with each other in patronising the handicraftsmen and working to obtain their goodwill and favour, and so exaggerating their importance in the social scheme, apparently ready at any time to secure their support by the sacrifice, if necessary, of other interests which have not a preponderating voting power and by such means accentuating all labour difficulties.

9. The scarcity of efficient and competent workmen in all trades throughout the country is evident, and much trouble and difficulty can be set down to this cause. There is a remedy for this in the hands of employers themselves, and that is to undertake the training of a sufficient number of apprentices in all trades, holding out inducements for parents to bring their boys up to trades by paying better wages during apprenticeship, also by encouraging young men who have obtained a partial knowledge of a trade to complete their training, and by using their influence with managers of industrial schools and charitable institutions to bring up lads to trades. This of course means a certain amount of responsibility and trouble to the employer, but when the result is considered and realised it will be found amply remunerative and satisfactory.

10. The Council have been consulted from time to time by the London County Council, who are large employers of direct labour, and the School Board for London, who are so to a limited extent, as to the terms and conditions prevailing with the Association and the men in their employment, and have by affording these bodies the necessary information been able to bring them into line.

11. The Council desire to express their disappointment at the result of the appeal in the House of Lords in the action of Allen *v.* Flood, the details of which they think it unnecessary to set out here, as they are sure members must have been interested sufficiently in the case to be familiar with them already.

12. The Council refer to the late strike and lock-out in the engineering trades with satisfaction, as it should be an object-lesson to employers in all other industries, and they think especially so in the building trade, as in many respects there is an affinity between the two industries. The Engineering Federation of Employers are to be complimented and congratulated upon the uncompromising and practically unanimous stand they made against the men's unreasonable demands and their vexatious conduct, and also on the success which has resulted. They think, in the face of this, the question, "Of what use is the Association?" will not be repeated, but instead the necessity will be admitted, not only of this Association, but of the National Association, and, what is more, the desirability of a federation of all the employers in the building trades throughout Great Britain. The workmen are working for federation in all trades, and, in self-defence, employers will have to do the same, not only for the purpose of meeting the combination of the workmen by a counter combination, but for establishing a powerful organisation whose influence can be exercised whenever interests have to be cared for, protected, and defended, and sufficiently important not to be ignored by any party. Already the labour leaders are saying they intend to obtain by legislation what they could not achieve by striking; and this is no idle threat. It will be necessary for employers to watch and oppose legislation of this character. The Council endeavoured to make itself heard last session when the Workmen's Compensation Act was before Parliament, and some modification resulted from their efforts, but not anything like what they desired, or, in their opinion, justice and fairness demanded. This was not to be wondered at when a prominent statesman in the House of Commons itself in the debate stated that the promoters were not actuated by considerations of justice, but were content with those of expediency alone. There is not only legislation to be opposed, but promoted. For instance, the Acts relating to picketing require amendment, and what is now included in the term picketing defined and called by their proper terms—boycotting, coercion, intimidation, assaulting, maiming, and injuring—and properly controlled and prevented.

13. The Council were invited to take part in a conference called by the Liberty and Property Defence League, with a view of establishing a Free Labour Protection Association, and they requested the President to represent the Association, and upon his report of the proceedings at the conference, desired him to act on the Executive Committee and gave a grant towards the preliminary expenses. It is believed that this Free Labour Protection Association will do useful work, and it has already helped in a great measure the success of the Engineers' Federation of Employers, as they were able to supply a large amount of free labour to firms who would probably, in the absence of this, have had to make terms with the men or secede from the Federation, owing to the urgency of their work and other circumstances.

14. The Council take this opportunity of expressing their obligations to the members of the various committees.

15. The Council would again urge upon the members the importance of inducing those employers who are not at present members to join this Association.

16. In accordance with the rules, the audited accounts will be presented to the meeting, and it will be necessary to elect two auditors and three members of the Council. The elected members of the Council who retire are Messrs. F. S. Bywaters, A. Killby, and B. E. Nightingale, all of whom are eligible for re-election.

The accounts for the year 1897 having been read, it was resolved, "That they be received and adopted, and a vote of thanks be tendered to the auditors for their services."

It was also resolved, "That Mr. H. S. Foster and Mr. F. L. Dove be appointed auditors for the ensuing year."

It was agreed, "That Mr. F. S. Bywaters, Mr. A. Killby, Mr. B. E. Nightingale, be re-elected members of the Council."

Other matters having been discussed, it was resolved, "That a vote of thanks be tendered to the chairman for presiding, and for his services during the past year."

The meeting then concluded.

THE REDECORATION OF THE LIVERPOOL TOWN HALL.—The Finance Committee of the City Council held a special meeting on the 15th inst., to consider further the matter of redecorating the Town Hall. It was decided to invite Professor Simpson, Principal of the School of Architecture and Applied Art, to submit a scheme upon which firms might be invited to tender.

Y.M.C.A. BUILDINGS, ABERDEEN.—A meeting of the Special Building Committee of the Young Men's Christian Association was held on the 11th inst. to consider the new plans which have been prepared for the reconstruction of the Association buildings. It is proposed to rebuild the front of the house, and alter the construction of the large hall in the rear, at a total cost of about 2,000*l.* Messrs. W. Henderson & Son, architects, who prepared the plans, were appointed architects for the reconstruction of the buildings.

THE SURVEYORS' INSTITUTION:

LEGAL LIABILITY FOR PROFESSIONAL OPINION.

AN ordinary fortnightly meeting of this Institution was held on Monday in the temporary premises of the Institution, Savoy-street, Victoria Embankment, the President, Mr. Christopher Oakley, occupying the chair.

The minutes of the last meeting having been read and confirmed, Mr. T. W. Wheeler, Q.C., read a paper on the "Legal Liability for Professional Opinion."

The author dealt first with professional or expert opinion as the law regards it. Secondly, the degree of skill which the law regards as necessary to the practice of any particular profession or calling. Thirdly, the damages which may be given as the result of professional negligence. He was not quite sure that the date could be fixed when professional "opinion" was first received as evidence in our courts. The object of evidence was to inform the tribunal as to matters of fact, and matters of mere opinion were not admissible in evidence. The jury, not the witnesses, were to form opinion, but a large and material exception had been engrafted upon this rule, and sanctioned within certain defined limits, the statement of "opinion" as admissible in evidence. Where in any case there was any question on any point of science or art, the "opinions" upon that question or point, of persons specially skilled in such matters, were relevant facts. The words "science" or "art" included all subjects upon which a course of special study or experience was necessary to the formation of an opinion, and it might be considered now beyond question that within this rule the evidence of physicians, surgeons, barristers, solicitors, engineers, surveyors, land agents, artists, scientists, experts in handwriting, and even in ancient seals, were all comprised, and further, in commercial matters, where commercial dealings were in question, the evidence of merchants or underwriters was now to some extent receivable—to what extent might still be open to question, but the fact remained of its admissibility. The questions asked of an expert must be questions of art or science. In two cases recently before the Lord Chief Justice, where the question was as to handwriting, the learned judge in substance "advised the jury not to accept the evidence of experts in handwriting in preference to their own considered judgment." The real use of such evidence was to "open the eyes" of a jury to differences which otherwise might not be observed by unskilled persons. The evidence of experts was not favourably regarded in our courts of law, although it was not restricted as it is under the French or the German code. Under the Code Napoleon evidence of this kind was not called by the parties, but was in the nature of advisatory evidence to the court. In our own Court of Admiralty, in suits of damage and salvage, the attendance of the Trinity Masters, who were, of course, highly-skilled seamen, might be obtained as a matter of course. After hearing the evidence, they advised on all questions of a nautical kind or character, but with the judge alone rested the actual decision. This model, an excellent one in the author's judgment, was followed under the Judicature Acts by Order 55, Rule 19: "The Judge in Chambers may, in such way as he thinks fit, obtain the assistance of accountants, merchants, engineers, actuaries, and other scientific persons, the better to enable any matter at once to be determined, and he may act upon the certificate of any such person." Here was actual judicial authority vested by Act of Parliament in persons such as his hearers. But that was not all, for under Order 36, Rule 7, the judge might sit in open court in certain cases with accessors—a rule which assimilated the practice of our common law to that of the Court of Admiralty. So great had the evil grown of expert evidence (so unfair, so reckless, and apparently so dishonest) in America that there was a broad and widespread agitation to adopt in the courts of the United States the French or German plan. In the language of *Taylor on Evidence*, a work of the highest authority, it was said that the "testimony of skilled witnesses is perhaps that which deserves least credit with a jury." Lord Campbell, in the Tracy Peerage Case, said that skilled witnesses came with such a "bias" that hardly any weight should be given to their evidence. The late Sir George Jessel (*Abinger* v. *Ashton*, 17 Equity Cases, p. 373, year 1873), speaking of experts said: "They (the plaintiffs) contest the case by producing the evidence of some experts whose evidence was met by at least as many experts on the part of the defendants. As to this, I may say what I think I have often said before, that in matters of opinion I very much distrust expert evidence and for several reasons. In the first place, although the evidence is given upon oath, in point of fact the person knows he cannot be indicted for perjury, because it is only evidence as to a matter of opinion. So that you have not the authority of legal sanction. A dishonest man, knowing he could not be punished, might be inclined to indulge in extravagant assertions on an occasion that required it. Expert evidence of this kind is evidence of persons who sometimes live by their business, but in all cases are remunerated for their evidence. An expert is not like an ordinary witness who hopes to get his expenses but he is employed and paid in the sense of gain, being employed by the person who calls him." All these judicial dicta were of course general, and applied to experts of every kind and every class. They were endorsed by the opinion of Lord Westbury and by the late Sir Alexander Cockburn whilst the evidence in patent cases specially had called down the wrath of Mr. Justice Kekewich in *Nettlefold* v. *Reynolds* (L. T., vol. lxv. p. 699) and of the Master of the Rolls in *Ungar* v. *Sugg*, 1892 (9 P. C. R. 113). As to Lord Campbell's dictum as to "bias," whilst there was something to be said for it, the case was overstated. Take the case of the surveyor, as an instance. It was his duty to see that no possible interest of his client, a claimant, however remote, was overlooked. In the same way it was the duty of the surveyor on the other side to exclude, so far as possible, those elements of value which were merely problematical, or visionary. That was the true explanation of those divergencies of view which called forth the ignorant censures of ignorant critics. Failing in his duty as to this, the surveyor was negligent. Whatever "bias" there might be could be tested by cross-examination. The "bias" of which Lord Campbell spoke appeared to the author to be a vanishing quantity. The observations of Sir George Jessel were not so strictly accurate as one might reasonably expect from so great a judge; it was not true to say that the witness to an "opinion" could not be indicted for perjury. He could be, and had been. The difficulty in obtaining a conviction might be great. The fact remained that in the *Queen* v. *Schlesmiger* an expert witness was convicted of perjury (10 Q. B., 670). He did not see that the mere fact of payment need necessarily create suspicion as to honesty, though it furnished, of course, material for cross-examination. The observations of Sir George Jessel were too wide; they would cover the comments or observations of counsel. Striking testimony had been borne to the honesty of the evidence of valuers in the course of the proceedings of the Royal Commission on the Land Acts in Ireland. Wide generalisations were all very well, but in the author's judgment tribunals must trust to the integrity of those before them, whether as witnesses or counsel. He admitted the rôle of the professional witness to be a dangerous one. Of course it might be said the administration of an oath made all the difference. He did not concur to that extent. It was the practice to administer oaths to expert witnesses, but in point of law he believed this, strictly speaking, to be unnecessary.

Speaking of surveyors, a case was cited in a text book to show with what hesitation and doubt the evidence of surveyors should be received; it was a case of *Walters* v. *Thorn* (22 Bevan, 547). But that was a case which proved nothing of the kind when really examined. Whatever might be the difficulties that surrounded "evidence based upon mere opinion," the case against it was overstated, although every now and then cases undoubtedly did arise, which might fairly challenge the severest criticism. Cases of this kind were matters for professional discipline, and should be dealt with as such, through such disciplinary bodies as their own Institution, or that of the Engineers. In considering the qualification and skill they impliedly undertook to bring to their client's assistance, the author said that a man who entered upon the exercise of any public profession contracted to bring to its discharge, whatever it might be, honesty and integrity of course, and further, there was upon his part an implied warranty that he was skilled and reasonably competent for the task he undertook. No one undertook more than this by the mere fact of employment. They might contract for more; they could not contract for less, and thus, whether their employment be to advise their client, as a trustee upon an advance to be made by way of mortgage or otherwise, or to give evidence and support their client in contested cases, in any circumstances where they were the adviser and their client was the advised, they were undoubtedly amenable to him in an action for "negligence." "Negligence" was a very convenient term, but what it meant was the neglect of some *legal* duty—not mere *moral* duty. A great writer had said, "a man may be indicted for not loving his neighbour as himself."

The author illustrated his meaning by several cases. In the first case a valuation was made on behalf of an intending mortgagee upon a property that at the moment of time when the advance was made was undeveloped, but where undoubtedly a latent building value existed. No development, in fact, taking place, the property was put up for sale, and failed to find a purchaser. Ultimately proceedings were taken against the surveyor upon whose advice and valuation the money had been advanced. A compromise was effected. Here the error arose from an over sanguine view of the ripeness of the estate for building, and possibly owing also to the fact of incorrect information. It was the case of an error of judgment merely. Another case was the Law Guarantee Trust *v.* Boyes. Upon a valuation estimating the value of certain premises at 17,000*l.*, an advance of 12,000*l.* was in fact made. Very cogent and strong evidence was given to show that the property was not worth 17,000*l.* or anything like it, that it was not the proper security for any such sum as 12,000*l.*, that at a forced sale the value was something over 7,000*l.*, whilst to a willing purchaser the property might have been worth something over 9,000*l.* For the defendant, of course evidence was adduced to show the fairness of the estimate. In this case the jury found for the defendant, and rightly, although the figures were very wide apart. But in an issue of this kind, where the defendant was alleged to be negligent the "onus" was on the attacking party, and in the case to which he referred surveyors of at least equal ability were called on the part of the defendant, and where evidence was so equally balanced it could not be said fairly that an affirmative case of negligence was made out. In this case the building had actually cost 15,000*l.* exclusive of site. So far as the rental value was concerned, for the plaintiff a ten years' multiplier was suggested, for the defendant a twenty years' multiplier, and therefore they had the widest discrepancy between the two views. In conclusion, the author said that he had dealt with the subject for the purpose of showing that whilst in the witness-box expert evidence had been very widely criticised, often in ignorance of its true character, yet apart from that, the legislature had entrusted many important duties to experts in an advisatory and even judicial sense, whilst the faith reposed in them by the public at large was of the widest and broadest character. So should be their responsibilities. Failure of duty, negligence, or ignorance rightly made them liable to those who retained them. This ignorance might spring from two principal sources, want of actual knowledge or want of experience.

Mr. Howard Martin proposed a vote of thanks to the lecturer, which was seconded by Mr. G. R. Crickmay.

A short discussion followed in which Messrs. Daniel Watney, George Corderoy and H. Northcroft, took part.

The vote of thanks having been agreed to, and Mr. Wheeler having replied, the meeting terminated.

STREET IMPROVEMENTS, KETTERING.—For the purpose of inquiring into an application for sanction to borrow 11,400*l.* for works of public and private street improvements, Mr. W. O. E. Meade-King, an inspector to the Local Government Board, held an inquiry at the Urban Council Chambers on the 9th inst. The plans were explained by the Surveyor, Mr. T. R. Smith, who pointed out that the public streets were part of Victoria-street and High-street, and the private streets were as follows: Lindsay, Canon, Club, Eskdale, Alfred, and Garfield-streets, Tennyson-road, York-road, St. Peter's-avenue, 40 ft. wide; Crown-street, Carlton-street, Green-lane, partly 40 ft. wide; Acre, Oxford, Lawson, Brook, Spencer, and Gratton-streets, 30 ft. in width.

THE LONDON COUNTY COUNCIL.

THE last meeting of the present London County Council was held on Tuesday in the County Hall, Spring-gardens, Dr. Collins, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend the Poplar District Board 7,650*l.* for paving and sewer works, the St. Pancras Vestry 22,445*l.* for electric lighting purposes, and the Shoreditch Vestry 4,100*l.* for underground conveniences.

The Works Department.—The same Committee reported as follows, the recommendations being agreed to :—

"We have had under consideration the charge which should be made to the Works Department for the year 1897-8 in respect of interest on, and repayment of, capital outlay at the Central Works. There are two classes of capital outlay which, in our opinion, should be treated somewhat differently, following in that respect the precedent of the last four years. The first is that of capital expenditure upon the site and permanent buildings of the Department up to March 31, 1897. The charge for this has been, and we think may continue to be, based upon the actual cost to the Council of the money raised. This amounts to 2,760*l.* 7s. 2d. for interest and 1,909*l.* 4s. 3d. for repayment of capital, or together 4,669*l.* 11s. 5d. The other class of capital outlay is of the nature of working capital, and is represented by the value of the stock of plant and materials in hand. We consider that this working capital might be regarded as being provided out of the proceeds of the issue of stock, and that the charge for interest should be approximately at the rate at which the Council raised stock during the year. The average value of the stock in hand throughout the year has been approximately 65,000*l.*, and the rate of interest should be 2½ per cent. The charge on this basis works out at 1,625*l.* We recommend—(*a*) That the amount to be charged (in lieu of rent) to the Works Department for interest on and repayment of original capital outlay on the Central wharf and buildings for the year ending March 31, 1898, be 4,669*l.* 11s. 5d. (*b*) That the amount of interest to be charged to the Works Department on working capital during the year ending March 31, 1898, be 1,625*l.*"

The Housing of the Working Classes Committee reported as follows :—

"We submit plans, specification, quantities, and estimate for the block of dwellings to be erected on the site on the Boundary-street area facing Navarre-street which runs from the central open space to Boundary-street. Wargrave-buildings, as this block will be called, provides accommodation for 280 persons in sixty associated tenements, of which twenty contain three rooms, and forty two rooms. The estimate of the total cost of the buildings is 13,715*l.* 10s., and the sum at which the necessary works are to be carried out is 12,920*l.*, which includes a sum of 23*l.* for the paving of yards chargeable to other buildings. We have supplied the Finance Committee with the estimates of receipts and outgoings, in order to enable them to make the necessary calculations as to the probable effect of the erection of the dwellings upon the county rate, and we anticipate an annual balance on the right side of 13*l.* The Works Manager has informed us that he is prepared to undertake the execution of the works at the amount of the architect's estimate, viz., 12,920*l.* We recommend—That the estimate of 13,715*l.* 10s. submitted by the Finance Committee in respect of the erection of Wargrave-buildings, Boundary-street area, be approved; that the work be executed by the Council without the intervention of a contractor, and that the plans, specification, quantities, and estimate of 12,920*l.* be referred to the Works Manager for that purpose."

Mr. E. White moved an amendment in favour of inviting tenders. Work of this character, when undertaken by the Works Department, had always resulted in a large loss to the ratepayers.

Lord Dunraven seconded the amendment.

The Rev. F. Williams, Mr. Goodman, and Mr. A. Smith supported the recommendation.

Upon a division the amendment was rejected by 58 votes to 45, and the recommendation was then agreed to.

Churchyard Bottom Wood.—The Parks and Open Spaces Committee recommended that the Council's contribution towards the cost of acquiring Churchyard Bottom Wood should be increased from the proposed sum of 2,500*l.* to 5,000*l.*

Colonel Rotton moved an amendment that the contribution should not exceed 2,500*l.*, on the ground that the land was outside the county of London, and that the Middlesex County Council, within whose borders the land was included, would only contribute 5,000*l.*

Mr. Campbell seconded the amendment.

Upon a show of hands the amendment was rejected by a very large majority. The recommendation was then agreed to.

The Gas Light and Coke Company.—Mr. M'Kinnon Wood moved that the Council should oppose the Gas Light and Coke Company's Bill, on the ground that the proposed conversion of stock would increase the capital value of the Company's undertaking by 1,000,000*l.*, and enable the Company to nominally reduce the dividend while increasing the charge to consumers.

Mr. Benn seconded the resolution, which was ultimately agreed to.

Lighting of Chief Fire Station by Electricity.—The Fire Brigade Committee recommended, and, after discussion, it was agreed to accept, the tender of the National Electric Free Wiring Company, Limited, to carry out the electric light installation at the chief station of the Fire Brigade for 992*l.*, less the amount of the wages of the Council's employees who will be engaged on part of the work.

Technical Education.—The Technical Education Board recommended the Council to approve of a sum of 170,000*l.* being placed upon the estimates to be set aside out of the sums receivable by the Council under the Local Taxation (Customs and Excise) Act, 1890, for the purposes of technical education for the year 1898-9. The recommendation was agreed to.

Housing of the Working Classes.—Upon the reception of a report by the Housing of the Working Classes Committee,

Dr. Longstaff moved an amendment to except from the reception of the report a statement of accounts, to the accuracy of which he demurred.

Mr. Beachcroft seconded the amendment.

A discussion followed, in the course of which Sir John Lubbock, M.P., was questioned as to the accuracy of his published statements with regard to the cost and results of the Council's work in the provision of artisans' dwellings. Sir John Lubbock admitted that he had somewhat understated the number of persons housed, but maintained that his main point was the check which the Council's action had imposed npon private enterprise.

Mr. A. Smith, Chairman of the Committee, said that up to March 31, 1897, the Council had in occupation dwellings erected and purchased at a cost, including all expenses of supervision, of 267,254*l.* There were at the date in course of erection further buildings estimated to cost 60,209*l.* Those, with one exception, had now been completed and occupied. The total expenditure up to December 31, 1897, on dwellings erected and in course of erection, was about 388,871*l.*, including the land. For that sum the Council had provided accommodation for 6,606 persons, and in addition there were seventeen shops, 100 workshops, twelve stables, and twenty sheds. Any comparison of the Council's buildings with those erected by trusts or companies upon the basis of rooms or persons was inaccurate, for the reason that no account was taken of the size of the rooms provided. It was notorious that the rooms in the Guinness-buildings, for example, were much smaller than those provided by the Council. Frequent and diligent inquiries had shown that the cost per cubic foot of the Council's more recent dwellings was exceeded in many instances by that of dwellings erected by the trusts. Accepting as a basis of comparison the cost per cubic foot of building, or the cost per square foot of dwelling accommodation, it could easily be shown that the Council was building as cheaply, if not more cheaply, than the trusts, notwithstanding the Council's severe sanitary regulations and the rule that the rent charged must be that ruling in the neighbourhood, and must at the same time ensure a return of 3 per cent., and the necessity for setting a standard of accommodation. In several instances, the Council were under an obligation to build, private enterprise having failed to carry out the work. The Council's housing policy was no real burden to the rates, and the municipality sixty years hence would derive an annual income of 16,750*l.* from the sites.

The amendment having been lost, the report was received.

Workmen's Trains.—The Housing of the Working Classes Committee, in reference to cheap trains for artisans and others, recommended that their report be referred to the Parliamentary Committee to report, at an early date, as to the best steps to be taken with a view to amending the Cheap Trains Act, 1883, and that a report upon workmen's train services north of the Thames be prepared on the lines of the report of the services south of the Thames. This was agreed to.

Equipment of the Heath Asylum, Bexley.—The Asylums Committee recommended, and it was agreed, that the estimate of 60,000*l.* submitted for the equipment, &c., of the Heath Asylum, Bexley, be approved.

Vauxhall Bridge.—The Bridges Committee brought up the following report, the recommendation being agreed to :—

"1. Since the passing of the Act authorising the construction of a new bridge at Vauxhall, the subject has engaged our continued attention, and the Chief Engineer has on various occasions prepared several more or less finished drawings and designs, besides an equal number of half-sized and full-sized sketches of details, upon all of which we have deliberated. Up to July last, when we placed before the Council a design which we were asked to reconsider, it was assumed that the structure should take the form of a bridge with granite piers and steel arches. In placing before the Council a bridge designed on these lines, great difficulty was experienced in attempting to reconcile the various ideas on matters of taste which prevailed; but we believe that objections to any steel bridge were founded on the conception that an iron or steel arched bridge should present those features of stability which a masonry structure alone could produce. It may, perhaps, be as well to remind the Council here that certain engineering and structural difficulties have to be overcome. The ground on both sides of the river is low, but the bridge has to be made to accommodate the traffic to the easy gradient mentioned in the Act of Parliament, namely, 1 in 40. This is very different from the present bridge, which has a gradient of 1 in 35·7. Then, again, the traffic beneath the bridge must be considered; proper headways and narrow piers must be provided so that the tide-way shall not be interfered with, the existing structure having for years past been a danger to navigation. All these matters had to be considered and combined in a satisfactory design, and in respect of the latter the design has been submitted to the Thames Conservancy Board, and they have approved of the piers, waterway, and headways which we now suggest should be adopted by the Council. Since the last design for a steel-arched bridge was rejected in July, 1897, the Chief Engineer has given the subject his unremitting attention, and has endeavoured, within the limits imposed upon him by the estimate, to meet the views of all parties by preparing a design which will give, as far as can be expected, general satisfaction. After mature deliberation and a visit to similar structures on the Continent, and conferring with the engineers engaged in their construction, he has prepared a design embodying the principle on which his predecessor constructed the Thames Embankment, namely, a granite bridge backed with concrete. If this should be adopted the structure would have the appearance of a granite bridge, and would permit of it being erected like Waterloo or London Bridges. Moreover, it would allow the heaviest loads to pass over it, and would render unnecessary the annual expense of painting which, on the basis of our existing bridges, would save at least 1,000*l.* per annum. The structure would also be practically permanent. Similar bridges have been constructed over the Danube, the Neckar, and the Rhone, with equal if not larger spans than those proposed at Vauxhall, and have been tested in the most severe manner by passing over them locomotive engines weighing as much as 78 tons. . . . The bridge will be a five-arch structure supported by four piers and suitable abutments, as shown upon the drawings and models. The central span will be 149 ft. 9 in., the two intermediate spans 144 ft. 6¾ in. each, and the two land spans 130 ft. 6¾ in. each in width. An appearance of stability and massiveness is obtained by the free use of rock-faced granite in the arches and piers of the bridge, but it is somewhat difficult to render a bridge of the dimensions required at Vauxhall architecturally imposing, as it is a structure some 760 ft. in length, and only 28 ft. in height above Trinity high-water mark. With regard to this, it has been agreed that some feature shall be introduced which will break up the long line of parapet, and the Chief Engineer has endeavoured to do this in a manner which has proved most successful in a similar bridge over the Rhone at Geneva, by the introduction of columns which will ultimately carry the lamps for the illumination of the roadway and the river. . . . At present it is proposed that the bridge shall be faced with red and grey granite of various tints in such a manner as to bring out the features of the work in pleasing relief. The bronze lamp fittings and the designs for the top or finials of the columns are indicated in a general way upon the sketches, but may be modified if the general structure is approved by the Council. An amount has been set aside for the ornamentation of the bridge. We, however, do not propose to leave the pedestals unfilled, but intend to deal with this matter and to report upon it after the Council has approved of the general design. In deliberating upon this subject we have had the benefit of the advice of those

gentlemen who objected to the proposed steel arch bridge, and in presenting the present design we believe that, if the bridge were constructed in accordance therewith, it would prove to be one of the handsomest bridges over the Thames. The Parliamentary estimate for the cost of the bridge was 380,000*l.* By the adoption of the present design a saving of probably 20,000*l.* will be effected, and a much more permanent structure secured. We therefore recommend—That the design submitted for the bridge to be erected in the place of the present structure at Vauxhall be adopted, and that the Engineer be instructed to prepare the necessary contract, plans, sections, and specifications."

Enlargement, &c., of Battersea Fire Station.—The Fire Brigade Committee recommended, and it was agreed, that the estimate of 5,095*l.* to be submitted by the Finance Committee in respect of the enlargement and alteration of the Battersea fire-engine station be approved. That the tender of Mr. C. F. Kearley to enlarge and alter the Battersea fire-engine station for 4,895*l.* be accepted, subject to Mr. Kearley completing the bills of quantities to the Architect's satisfaction.

Russell-court Improvement.—The Highways Committee recommended, and it was agreed, that the estimate for 2,000*l.* submitted by the Finance Committee be approved; that the solicitor do prepare and obtain the execution of an agreement with the Duke of Bedford for the construction by him or his trustees, to the satisfaction of the Council's Chief Engineer, of a subway, with side passages, under the new street about to be formed between Catherine-street and Drury-lane, and for the actual cost of the subway, as ascertained by the comptroller, being repaid by the Council.

Sewer, Hamilton-road, Norwood.—On the 8th inst. the Council accepted the tender of Mr. Thomas Adams, amounting to 2,145*l.* 11s. 3d., for the construction of a new sewer along the Hamilton-road, West Norwood. Mr. Adams, however, on the next day wrote to the Council as follows:—"I understood Messrs. Jackson & Son's tender had been accepted for this work, and not having received any official intimation from your Council since the delivery of my tender on January 25 last, I have since entered into several large contracts which will keep me fully engaged for at least six or nine months—in fact I may say until the end of this year; so that if the above report is true, I would not be in a position to commence the work for some months."

On Tuesday it was recommended that the tender of Messrs. John Mowlem & Co., amounting to 2,504*l.* 5s. 6d., the next lowest tender, be accepted. The recommendation was not adopted, and after some discussion it was agreed that the work should be carried out by the Works Department.

The Main Drainage Committee also reported as follows, the recommendation, after discussion, being agreed to:—

"As regards the explanation given by Mr. Adams for not proceeding with the work immediately, we cannot consider it satisfactory, and we have come to the conclusion that the Council should show its disapproval of the course taken by not allowing him to tender for the Council's work in future. The tenders were, as already stated, opened by the Council on January 25, and our recommendation that Mr. Adams' tender be accepted was before the Council at its next meeting on February 1. The consideration of the recommendation was then postponed, but as it was adopted at the subsequent meeting, a period of fourteen days only elapsed between the opening and the acceptance of the tender. Moreover, as Mr. Adams' tender was the lowest, and Messrs. Jackson & Son's informal tender was not published, there was no reason why he should think that his tender would not be accepted. Having regard to standing order 207, we recommend that in future Mr. Thomas Adams be not allowed to tender for any work for the Council."

Victoria Embankment Extension.—The Parliamentary Committee recommended, and it was agreed, that the Parliamentary agent be instructed to take such steps as he may consider necessary to secure opposition to the second reading of the Victoria Embankment Extension and St. John's Improvement Bill.

Proposed Theatre, Hackney.—The Theatres and Music Halls Committee reported as follows, the recommendation being agreed to:—

We have considered eight drawings, dated February 11, 1898, submitted on behalf of Mr. Randall Andrews, in regard to a theatre which it is proposed to erect in Mare-street, Hackney. The site of the building, which will accommodate 1,271 persons, may be accepted as satisfactory, although it does not strictly comply with the regulations. We recommend that the eight drawings, dated February 11, 1898, in regard to the proposed theatre in Mare-street, Hackney, be approved on condition that the works be commenced within six months, and be carried out in all respects in accordance with the regulations of the Council and the provisions of the London Building Act, 1894, and that upon our reporting the completion of the building in accordance with the approved drawings and the above condition a certificate under the Metropolis Management and Building Acts Amendment Act, 1878, be sealed and issued to the owner of the premises.

Deviation from Plans certified by the District Surveyor under Section 43 of the London Building Act.—The Building Act Committee reported as follows, the recommendation being agreed to—

"Notice of objection under Sections 43 and 150 of the London Building Act was served by the District Surveyor upon the building owner of Nos. 12 and 13, Grafton-street, St. George, Hanover-square, in respect of certain deviations from the plans certified by the District Surveyor under the first-named section in the erection, without the Council's sanction, of a building of greater height than the buildings previously upon the site. Against this notice the owner appealed both to a magistrate and to the Tribunal of Appeal. When, however, the case came before the magistrate the hearing was, at the request of the owner, adjourned, in order that his appeal to the Tribunal might be taken first. The case was before the Tribunal on January 10, when, after hearing arguments, the Tribunal held that the notice served by the District Surveyor was not a decision under Section 43 of the Act, and that therefore the Tribunal had no jurisdiction in the matter. The case was again taken before the magistrate, who, after three days' hearing, decided on February 3 that the view taken by the Council was right, and that Section 43 did not allow a builder, without having previously obtained the Council's sanction, to deviate in any respect from the certified plans, even if no more ground be covered than was previously occupied; and that therefore the present owner could not without such sanction erect his new building, as he proposed to do, of greater height than the old building. The magistrate accordingly confirmed the District Surveyor's notice of objection, and ordered the building owner to pay to the Council 10*l.* 10s. as costs. We are informed that the building owner intends to appeal against this decision, and, having regard to the great importance of the question involved, we recommend that the Solicitor do take the necessary measures for upholding in the High Court the decision of the magistrate confirming the District Surveyor's notice of objection under Sections 43 and 150 of the London Building Act, 1894, with regard to deviation from the certified plans in the erection of a building on the site formerly occupied by Nos. 10 and 12, Grafton-street, St. George, Hanover-square."

The Council adjourned at 8.30 p.m.

THE SANITARY INSPECTORS' ASSOCIATION.

THE fifteenth annual dinner of this Association took place on Saturday last at the Holborn Restaurant, the President, Sir John Hutton, occupying the chair, and the Chairman of Council (Mr. Dee), with the past Chairmen and leading members of the Council, in the vice-chairs. Over 200 members and visitors sat down, among those near the President being Sir Walter Foster, M.P., Sir J. Crichton Browne, the Venerable Archdeacon Sinclair, Dr. Harris, Dr. Milson Rhodes (hon. member, Lancashire and Cheshire Branch), Dr. Mansfield Robinson (Shoreditch Local Board), Professor Allfred, Professor Crookshank, Mr. C. Macmahon (Western Branch), &c.

In the after-dinner proceedings Sir Walter Foster, responding to the toast of "The Houses of Parliament," said he regarded it as one of the duties of Parliament to help an association like that of the Sanitary Inspectors to realise its objects, and to further its interests. They were entitled to ask Parliament to strengthen their position and improve their fortunes, and he hoped the House of Commons would aid them in their work.

The toast of the evening, "Success to the Sanitary Inspectors' Association," was proposed by the President. He said the past year had not been a particularly eventful one, but owing to the fact that the Association was not limited to London it had prospered in all its branches, and its roll of over 700 members proved that the Association was valued throughout the land. One of their advantages was the possession of an admirable journal, which was invaluable to those seeking information on sanitary matters. He hoped the coming year would see a further increase in the public appreciation of the work of the sanitary inspector. In London, with 4,450,000 of population and only 200 inspectors, one saw how totally inadequate—excellent and capable as these officers were—must be their means of grappling with so large a population. The number of houses in London was 600,000, and, therefore, each inspector had on the average 25,000 of population and 3,000 houses between which he must divide his attention. In one of the poorer districts of London, which contained a large proportion of tenement houses, there were four inspectors who had 70,000 persons under their charge, and such districts, of course, required more attention from the sanitary inspector than more highly rented districts. One was astonished at the poverty of the remuneration these men received. If they desired—and all must do so—to attract men of great ability, with the learning necessary to a proper fulfilment of their duties, they must remunerate them on a higher scale. County Councils had, under certain circumstances, authority to pay a portion of these salaries, and it was a question to be seriously considered how to enable Local Authorities to better remunerate such men as they desired to attract to this service. The faithful sanitary inspectors must necessarily make enemies, because their highest duty was to see right and justice done.

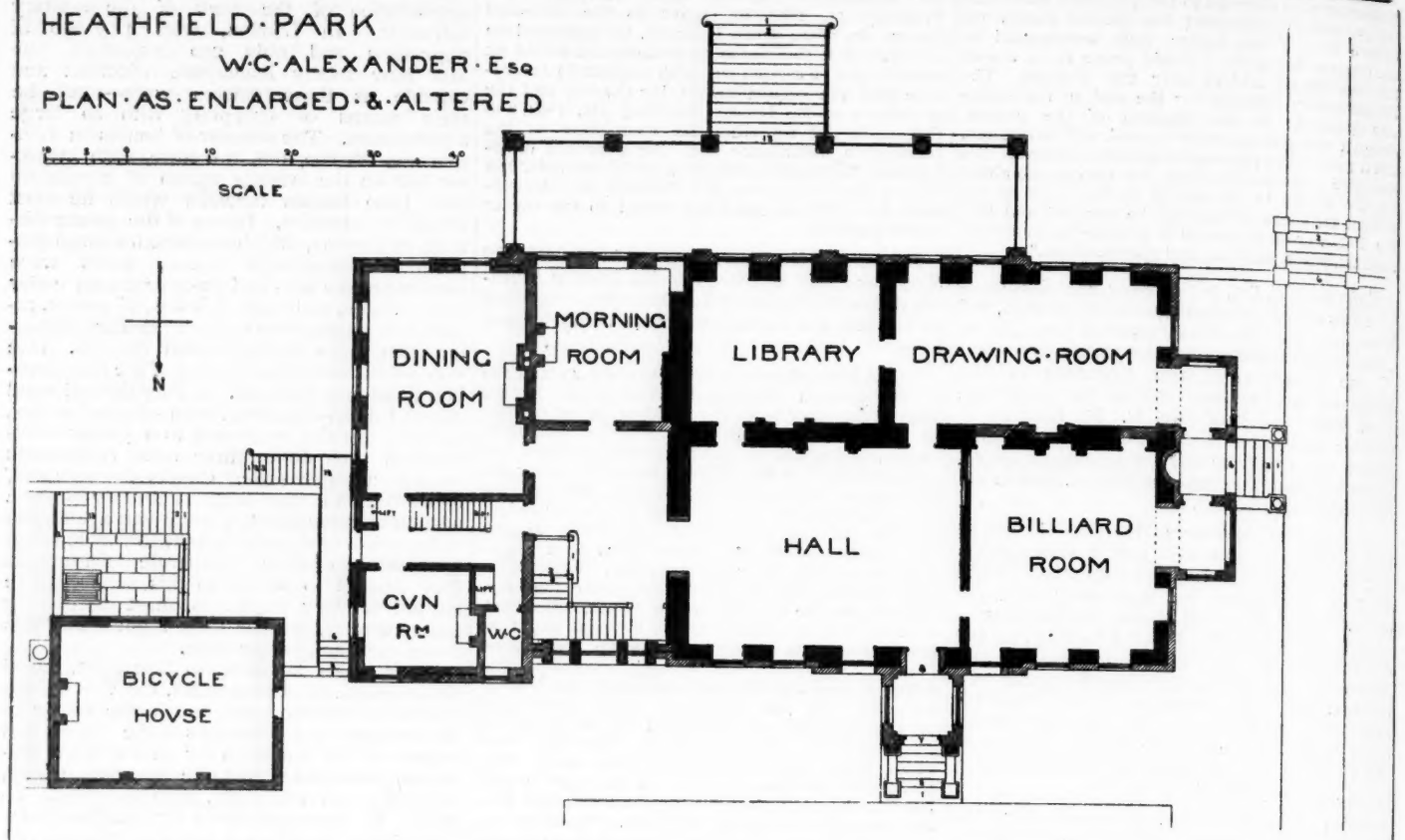
Other toasts followed, to Education, Local Government, Science and Art, the Visitors, the Executive, and the Press, and in the course of the proceedings testimonials of the respect and esteem of the members for two of their colleagues, who had served the Association long, devotedly, and efficiently, were presented. To Mr. C. W. Raymond, who for fourteen years had fulfilled the duties of honorary treasurer, an illuminated address, and a gold watch suitably inscribed, were presented by the President; and to Mr. W. W. West, the Chairman of Council in 1896 and 1897, a similar address and a writing-case.

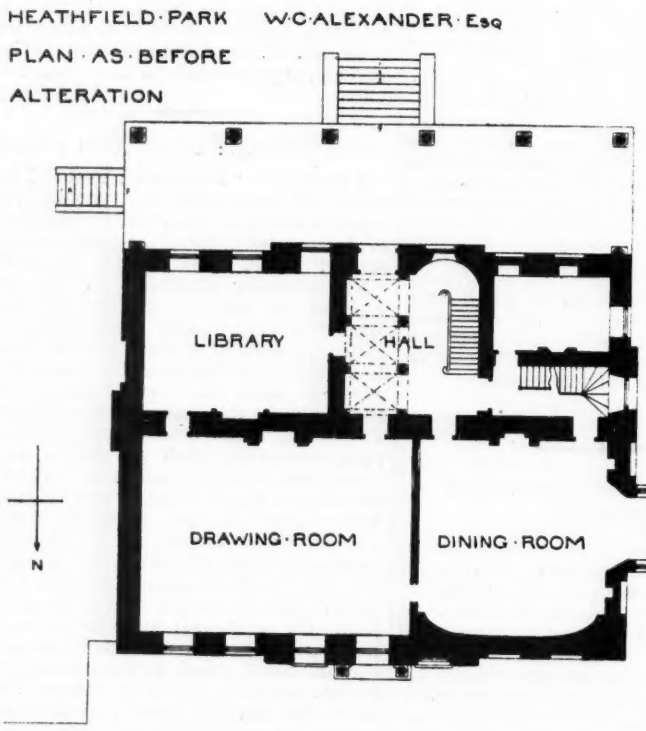
FURNITURE: PAST AND PRESENT.

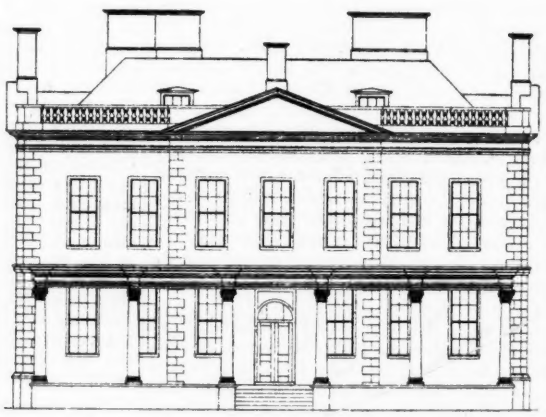
A PAPER on "Furniture: Past and Present" was read before the members of the Auctioneers' Institute on Tuesday evening by Mr. W. Roland Peck, the chair being occupied by Mr. J. F. Field, President of the Institute.

The lecturer attributed to the grouping together of famous artificers by the first Master Mason, nearly 3,000 years ago, the earliest evidences of style and workmanship; and some of the finest existing examples of art probably owed their origin to the influence and genius of the first Master of Freemasons. The subject was treated historically by Mr. Peck, beginning with the oldest and most venerable piece of furniture at present known, the chair of Queen Hatasu, who reigned in the Nile Valley sixteen centuries before the Christian era, through the primitive appointments of pre-Norman times in this country, to the historic collection belonging to the fourteenth century still preserved at Penshurst Place in Kent—the ornate and beautiful furniture of the Elizabethan period, the excellence of which was attributed chiefly to the encouragement to foreign artificers given by Henry VIII.—and the further advances shown in the later Stuart period, due very materially to the thousands of skilled workmen driven from France after the revocation of the Edict of Nantes (1689). The highest place in the history of English furniture was accorded to Chippendale (George II.), the solidity and superior finish of whose workmanship, said the lecturer, are examples for all time. The nineteenth century had no style of its own, and the Victorian era, though it had given us railways, telegraphs, telephones, and other wonders, had produced nothing really original in furniture, with the possible exception of a few pieces by William Morris. The paper concluded with a contrast between the small prices brought under the hammer fifty years ago, when a veritable Boule armoire brought but 21*l.*, and the high prices paid recently for such objects, which ranged from 4,000*l.* to 6,000*l.*

FISH HATCHERY, ABERDEEN.—The Scotch Fishery Board, having resolved to remove their fish hatchery from Dunbar to Aberdeen, have fixed the new site at Bay of Nigg. Mr. John Rust, City Architect, Aberdeen, has been appointed by the Fishery Board as architect for the new premises, which will include a covered tank 90 ft. by 25 ft. and 8 ft. deep, a laboratory, and a museum.







"Heathfield Park": South Elevation previous to Alterations.

DRAWINGS FOR THE ROYAL ACADEMY.

As usual, we shall be glad to receive and deliver at the Royal Academy all drawings intended for the Architectural Room which are sent to us in time to be photographed for publication before sending in.

The last day for receiving drawings at the Academy is Monday, March 28, and we can receive none at this office later than 12 noon on Saturday, March 26.

Every drawing must have *two* labels giving the title of the work and the name and address of the author, one affixed to the back of the drawing, and the other attached by a string so as to hang over in front of the drawing, and must be accompanied by a letter to the Secretary of the Royal Academy, giving also the title of the work and the name and address of the author. If more works than one are sent they must be numbered, and referred to by the corresponding numbers in the letter to the Secretary.

Gilt frames *only* are admissible at the Royal Academy.

We cannot provide labels for drawings which are sent without them.

Illustrations.

NEW REREDOS, BRISTOL CATHEDRAL.

THIS reredos, now being executed, is an elaborate structure in stone of a size and importance worthy of the cathedral; it is upwards of 17 ft. wide, and rises to a total height of 27 ft. from the floor of the sanctuary. The lower part, behind and above the altar, is plain, with a tall centre panel to enclose the altar cross; on either side of the upper half of this panel is an enriched arcade of five divisions containing sculpture. Above this lower part the centre portion (which takes the width of the altar and is about 10 ft. wide) is corbelled boldly forward, and to the right and left of this there are enrichments, from the floor upwards, of traceried panelling surmounted by niches with figures of Old Testament Saints on the left and New Testament Saints on the right.

Above the level of the top of the corbelling above mentioned, the whole of the reredos has one general treatment of wide niches in one, two, and three tiers, with canopies and pinnacles separated by narrower features, also enriched with niches and sculpture. The Crucifixion, with St. Mary and St. John, will occupy the centre niche. Other niches contain figures of saints and angels with their emblems.

The lower part of the back or eastern side of the reredos is quite plain up to a height of 7 ft.; above this level it is richly panelled up to a height of 14 ft., and above this buttresses divide it into a series of niches; the centre niche will contain a representation of the Presentation in the Temple, and on either side St. Mary and the Archangel Gabriel (representing the Annunciation); other niches will contain figures of saints and angels.

A panelled and traceried screen, 11 ft. high, with buttresses and pinnacles, separates the eastern bay of the choir from its eastern chapel flanking the reredos on either side.

The reredos was designed by the late J. L. Pearson, R.A., and is being carried out under the supervision of his son, Mr. F. L. Pearson.

"HEATHFIELD PARK," SUSSEX.

THIS house was originally called Baily Park, and was sold by Thomas Lord Dacre to Hercules Poulett in 1674, who again sold it to James Plumer, citizen of London. A stone which was excavated during the recent works, states that Plumer "laid ye first stone, Aug. 3, 1677." Remains however of a sixteenth century house were discovered; and it appears that Plumer left part of the basement of the old house above it. Plumer's house was a substantial building in fine brickwork and stone dressings, in the manner which has been followed in the building as recently completed. After passing in turn through the hands of

James Fuller, of Waldron, Raymond Blackmore and a family named O'Keefe, it was purchased in 1766 by Lieut. Gen. Elliott, afterwards Lord Heathfield of Gibraltar, and was sold by his son to Francis Newberry, of St. Paul's-churchyard. The property was again sold to Sir C. R. Blunt in 1819, who sold it to Mr. Scott, of whom it was purchased by the present owner, Mr. W. C. Alexander, in 1894. Towards the end of the eighteenth century the old brickwork was entirely covered with stucco. The old stone dressings and certain niches between the windows of Plumer's house were hacked about to give a key to the cement, and a balustrade, pediments, and other details of a very inferior description carried out in cement and all painted white. The roof was of Welsh slates with a lead flat. Certain interior decorations, including the hall arcade shown in the old plan, were carried out about the time that the property came into the hands of the Blunts. The house was in this condition when the recent works were undertaken.

These works include a large addition to the east, the re-arrangement of the interior and entirely new elevations, a new terrace and alteration of the grounds, and very considerathe repairs. The old external walls were much out of the perpendicular, and, with the exception of the facing of the seventeenth century brickwork. were very badly built, and stood merely by their bulk. This brickwork had been so much injured by hacking away for the stucco, that it was found necessary to remove it and reface the entire building with brickwork in cement, and advantage was taken of this opportunity to re-design the elevations. Several of the old binders were found to be entirely decayed at their bearings, and steel joists had to be substituted. The cement balustrades, cornices, and pediments were removed and replaced by a new wood cornice, dormers, and tile roof. Various alterations have been made in the interior, the most important being the shifting of the entrance from the south side to the north, the removal of the old hall and staircase, the formation of new main and back stairs and various rooms, and of a new drawing-room in the south-west corner. The old drawing-room is now the entrance hall. In consequence of the additions and in order to get a symmetrical façade on the south side, the old loggia was taken down and re-erected in the centre of the south façade, and the ground on this side has been lowered to the new terrace garden. The new buildings are executed in Keymer red bricks with rubbed brick and local stone dressings and Keymer tiles. The additions are hatched in the plan of the house as altered.

The works were carried out in 1896 and 1897 by Messrs. Bovis & Co. from the designs, and under the superintendence of Mr. Reginald Blomfield.

"KINGSWOOD," SYDENHAM HILL.

THIS house consists largely of the remodelling and refronting of an existing one, so that the general lines of the composition were, in a great measure, determined, while the most important additions, including the large hall and entrance, are on the opposite side to that shown in the view.

The new conservatory forms a wing balancing an existing one at the further end.

Other additions have been recently made to the building. H. V. LANCHESTER.

DESIGN FOR A SMALL COUNTRY CHURCH.

THIS design, by Mr. Chas. E. Varndell, was sent in to the Institute of Architects in competition for the Grissell Medal, under the motto "Emce," and was noticed in our review of the Institute prize drawings (*Builder*, January 22) as one of the best designs sent in, and as far as artistic feeling and invention are concerned we are inclined to think it was the best. The plan is cleverly contrived, and there is a great deal of freedom and effectiveness in the decorative details.

There may have been one or two points which interfered with its selection for the medal. The design was for a timber church, and the Grissell Medal is essentially a prize for constructional work, for which reason the selection of a church as the subject was perhaps not a very good one, as it is impossible to regard a church as a mere construction, and one would not wish to encourage young architects to do so. But from the constructional point of view the treatment of the diagonal trusses, with their scarfed connexions dependent so largely on bolts, and their rather weak-looking impost, is not quite satisfactory; and the circular treatment of the windows, with voussoirs (or what take that form) intercepting the archivolt mouldings, is rather an imitation of stone design than a proper form of timber design.

But in spite of these drawbacks, the design is on the whole a highly meritorious one as a student's work, and we have much pleasure in publishing it.

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

A METROPOLITAN District meeting of the Association of Municipal and County Engineers was held at the Institution of Civil Engineers, Westminster, on Friday last week. Mr. C. H. Lowe, Hampstead, vice-president, occupied the chair in the unavoidable absence of Sir Alexander Binnie, and amongst those present were Messrs. W. Weaver, Kensington; W. N. Blair, St. Pancras; J. S Norrington, Lambeth; J. T. Eayrs, Birmingham; E. Pritchard, Birmingham; J. Price, Birmingham; Read, Gloucester; J. C. Radford, Putney; T. Cole, Westminster, Secretary; Martin, Streatham; P. Dodd, Wandsworth; C. G. Lawson, Southgate; Davis, Hounslow; L. Angell, West Ham; Cooper, Wimbledon; Southam, Clapham; and others.

Superannuation.

Mr. Weaver, C.E., Surveyor to the Kensington Vestry, introduced the question of superannuation, as affected by the proposed Bill to extend the provisions of the Poor Law Officers' Superannuation Act, 1896, to the officers and servants of other Local Authorities, and the proposed Bill to amend the Metropolitan Officers' Superannuation Act, 1866. He said the first Bill applied to the whole country, and proposed to make all officers and servants appointed by any Board entitled to a superannuation allowance. The second Bill promoted by the Metropolitan Officers' Association proposed to convert the word "may" into the word "shall" in the Superannuation Act of 1866. Of course, the Association would only be too glad to see the benefits of superannuation extended to the whole of the officers throughout the country; but at the same time the Council had come to the conclusion that there was no chance of the larger Bill, but there was a good chance of the smaller Bill for the metropolis, going through Parliament. Probably the feeling of the meeting would be to support the larger measure so long as they thought there was any chance of its going through Parliament, and in default of that to press forward the smaller Bill to the best of their ability.

After a short discussion, in which the general opinion of the members was in favour of supporting both Bills, Mr. Price, Birmingham, moved a resolution to that effect, which was seconded by Mr. Davis, Hounslow, and adopted.

Combined Drainage.

Mr. W. Nisbet Blair, St. Pancras, then referred to the proposed Bill to amend the Metropolis Management Acts with respect to sewers and drains. He said the only difference between the Bill which had been introduced this session and the Bill of previous sessions was a clause to meet the opposition of Mr. Boulnois on behalf of Marylebone. The opposition to the original Bill had been most strenuously maintained by the Vestry of Marylebone, and the provision giving the London County Council power to approve of combined drains where desirable had been put in with a view of preventing their opposition this session. He believed there was every prospect now of the Bill being carried through. It was true there would be a strong opposition by owners of property, who were beginning to realise what an economy it was that these drains should be handed over to the Local Authority. The authorities had to spend thousands of pounds a year in this particular work. Owners knew that, and would be loth to bear the burden they ought to bear; but he did not think vested interests of that kind should induce Parliament to withdraw so manifestly justifiable an Act.

Mr. Lewis Angell, West Ham, said he wished success to Mr. Blair's hopes, but he was afraid he was doomed to disappointment. Personally, he thought there was little prospect of the Bill getting through the House of Commons. The Bill had always been blocked because it was to the interest of property owners that things should remain as they were.

The Chairman stated that there would not be a resolution submitted to the meeting on this subject—the difficulty of which was well understood by every Metropolitan Member.

Sewer Ventilation.

The Chairman then introduced the subject of the proposed Conference of Metropolitan Surveyors called to consider the question of sewer ventilation. He said he was anxious this question should be brought before the Association because that day week they would be before their President, Sir A. Binnie, to consider the question as a whole. It was a very vexed question, and it was almost impossible to generalise or to apply rules which would be applicable to the whole of London. That was their difficulty in coming to any decision, but they were all anxious that some practical results should come from their meeting on Friday. He thought possibly no suburban district had given more attention to this question than Hampstead. They lay particularly high, and the theory was started, as long ago as 1877, that they were suffering unduly from the up current in the sewers from London proper. They had complaints both sentimental and real. The complaints went on until 1886, when the Vestry, being still troubled by these complaints, called in Mr. Mansergh to advise them. Mr. Mansergh recommended open ventilation in the streets, the ventilators not to be more than sixty yards apart. The Vestry followed out Mr. Mansergh's recommendation, and spent a large sum of money, running to 2,000*l.* or 3,000*l.*, in supplying automatic flushing tanks and putting ventilators in. This had the effect of stopping many of the complaints. Now they had come to the source of the evil and the cause why they were troubled more with complaints where modern drains had been put into the houses. They had been able to localise the complaints so much as to prove that what was required was extra means for flushing the house drains. The use of intercepting traps on the drains caused the water to trickle through the trap without clearing it, and when an extra flush cleared the traps smells were caused in the sewers.

Mr. W. Weaver, Kensington, said that in his annual report to his Vestry he expressed the opinion that the growing complaint of smells in the public streets was to be attributed to the advance of sanitation in the houses. A suggestion in that report was that the Vestry should send a communication to the London County Council, asking them to call a conference of the various Metropolitan Surveyors to thresh out this question, assisted by the Chief Engineer of the Council, Sir A. Binnie. The suggestion was promptly acceded to by the Council, and Sir Alexander Binnie had appointed that day week at Spring Gardens for the Metropolitan Surveyors to confer with him. At the same time, the Medical Officers of Health of the various Boards had been appointed as delegates to the meeting. They would see that, with an equal representation of surveyors and medical officers, if there was any great diversity of opinion amongst the surveyors they would be outvoted and sat upon by the medical officers. It was in view of this conference that the subject was put down for discussion at that meeting, so that they might, if possible, thresh out and adjust any differences which existed amongst themselves. His own opinion, which he had expressed for years, was that syphon traps were bad in theory, and would have a bad result in practice. The subsequent experience he had gained had confirmed the opinion he had expressed upon their introduction. Smells in the streets had increased in direct proportion to the reconstructon on modern principles of house drains. In former years each house aided to get rid of the smells in the sewers, whereas now each house strove to shut off all communication with the sewers, and thrust its smells under the nose of its neighbour. The drains in the houses, and the sewers in the streets, should all be treated as one system like the veins and arteries of the human body, dependent upon one another, and assisting one another. If the County Council, in its new by-laws, insisted upon intercepting traps in the front of each house, the ventilating pipe ought to be carried up on the sewer side of the interceptor. If there was no interceptor then the ventilator at the end of

he drain would answer all purposes. Another point was that where the intercepting trap was placed on the house side of the drain, flap traps should not be erected. At the present time, he unstopped about twenty drains a week, and the unvarying reports of the sewer men was that it was the syphon trap choked with grease. He wanted, if possible, for the surveyors to have some little voice in the guidance of the affairs of London, and they could only do that by pulling together.

Mr. Norrington, Lambeth, regretted that he was not going to show that unanimity which Mr. Weaver desired. He was very pleased to hear Mr. Lowe say that his Board had adopted the advice given them by Mr. Mansergh, and had constructed surface ventilators about sixty yards apart. That was the original recommendation of the Metropolitan Board in 1886. The report of the Metropolitan Board went on to say that the amount of ventilation afforded by large ventilating shafts was in no way commensurate with the cost. Some time ago he made some experiments himself as to the value of these ventilating shafts, and he was sorry to say they confirmed the Metropolitan Board's report. The result of the test of twenty-six surface ventilators was that they all acted more or less vigorously, and that 43 cubic feet of air per minute passed either in or out of the sewers. He examined at the same time, and under the same conditions, twelve ventilating shafts in his district and he was sorry to say of these shafts only three showed the slightest movement, and the net result was that only 4·25 cubic feet of air per minute passed through them. He could not help feeling that the whole of the money spent on the construction of those shafts — some of them cost as much as 20*l.*—had been utterly wasted. It was a common practice where they had complaints of surface ventilators to erect these shafts, and, in his opinion, it was nothing but a subterfuge. They did not get rid of the difficulty; they did not ventilate the sewers; but they appeased public clamour, which he did not think worthy of them as officers of Public Authorities. In his opinion, the method of open surface ventilators adopted by the Hampstead Board was the proper method to revert to. It was recommended as long ago as 1886, but had never been fairly tried because the surface ventilators were usually 200 or 300 yards apart.

Mr. Read, Gloucester, said the whole difficulty appeared to him to have been created by the Local Government Board, who said that the drains must be independently ventilated from the sewers. In order to do that, the model by-laws provided for the intercepting trap, which to his mind was the cause of all their difficulties. The intercepting trap paralysed the ventilation of the drains.

Mr. Dodd, Wandsworth, considered that all ventilating pipes erected should be galvanised or glazed inside, or else they would find, as he had, that they were completely stopped by iron rust.

Mr. W. N. Blair, St. Pancras, gave the results of tests of ventilating shafts at Bootle and in the St. Pancras district, which had given excellent results in contradistinction to the unsatisfactory tests of Mr. Norrington. In the St. Pancras case there was no nuisance where formerly there was a terrific nuisance. He was very much in favour of Mr. Weaver's suggestion, but he thought there was very little opportunity of getting owners of property to put a ventilating pipe below the interceptor. The introduction of the syphon trap had undoubtedly interfered with the ventilation of the main sewer. The syphon trap was introduced because drains were not to be relied upon as being either air or water tight, but now they could rest assured that drains were both air and water tight there could be no harm in letting the air pass through that pipe. At the same time he thought many of them would hesitate to have a drain passing under their house which ventilated a public sewer. Where it was in the garden no one would hesitate.

Mr. Weaver, Kensington, said that, to test the feeling of the meeting, he would propose the following resolution, "That in connexion with any interceptor hereafter fixed on a main house drain, it shall be compulsory on the owner of the premises to carry up a ventilating-pipe not less than 24 square inches in sectional area from the sewer side of the interceptor up the front side or back of the house, to the satisfaction of the Local Sanitary Authority."

Mr. Blair, St. Pancras, seconded the proposition.

Mr. Norrington, Lambeth, said that Mr. Weaver's proposition only dealt with the fringe of the subject, and he would propose "that the London County Council be recommended to carry out the suggestion of the Metropolitan Board of Works that surface ventilators be placed at a distance of from 50 to 60 yards apart, with air openings in the gratings equal to 60 square inches."

Mr. Southam, Clapham, seconded the proposition.

Mr. Weaver remarked that Mr. Norrington's proposal would have to be taken as an amendment, because if they went in for pipe ventilators they must reduce the number of street surface ventilators.

Mr. Norrington said he declined to put it as an amendment. The first thing to do was to ventilate the sewers; then they might add to it Mr. Weaver's proposal.

Eventually it was decided to put both as separate propositions, and they were adopted.

The meeting then terminated.

BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

THE thirty-first annual general meeting of the donors and subscribers of this Institution was held at the offices of the Institution, 21, New Bridge-street, E.C., on Tuesday evening, the President-elect, Mr. R. C. Foster (Messrs. Foster & Dicksee), occupying the chair, supported by Mr. Thomas Hall (retiring President) and others.

The Secretary read the report, which stated that the amounts received in the past year were 271*l.* 8s. 6d. in annual subscriptions, 396*l.* os. 6d. in donations, 148*l.* 10s. in dividends, and a small sum of 2*l.* 2s. 11d. was received as interest on deposit. There was also a balance from dinner account of 8*l.* 16s. 5d., making a total of income for the year of 826*l.* 18s. 4d. On the expenditure side, the disbursements amounted to 506*l.* 12s. 6d., of which sum 418*l.* 8s. 4d. was given in pensions and temporary relief. There are twenty pensioners now on the books. In reference to the orphan fund, there is a vacancy at the present time, and the committee are prepared to receive applications on behalf of intending candidates. The nineteenth annual dinner was held in the King's Hall, Holborn Restaurant, on Tuesday, April 6, 1897, Mr. Thomas Hall, the President, occupying the chair, when 391*l.* 16s. 6d. was obtained as the result of his appeal. It being known that much distress existed amongst some of the pensioners, it was thought that a good way of celebrating the Queen's Diamond Jubilee would be to increase the amounts of the pensions, the men's being raised from 25*l.* to 30*l.* per annum, and the widows' from 20*l.* to 24*l.* per annum, the limit of income (apart from the pension) being extended from 25*l.* to 35*l.* per annum. With reference to the Presidency, the committee announced that Mr. R. C. Foster had accepted the office in succession to Mr. Hall. The committee concluded by thanking the professions and trades connected with the building interests for their continued help.

The President-elect said the Institution was to be congratulated on the success that had attended its operations since its establishment. The previous year's income had been the largest yet received. Then, looking at the income and the expenses incurred, he noticed that of every twenty shillings received, the expenses amounted to 2s. 2d. only. He felt it was certainly a departure to ask a representative of a country firm to become President of a London Institution—but he did not know that this would matter. He concluded by moving a resolution to the effect that the report and balance-sheets be adopted and printed together with list of subscribers and rules. Mr. E. B. Gammon seconded, and the resolution was carried.

Mr. Brooks then proposed, and Mr. Parker seconded, a vote of thanks to the retiring officers, which was carried, Mr. Thomas Hall, the retiring President, replying briefly. On the motion of Mr. Oldham, seconded by Mr. C. K. Turpin, officers for the present year were elected; and the meeting closed with a vote of thanks to the Chairman.

BLOOMSBURY CHAPEL.—It is stated that the fiftieth anniversary of the opening of the chapel will be celebrated this year by placing the fabric in thorough repair and rearranging the interior. It was built by Sir Morton Peto for the Baptists, in 1847-8, after the designs of John Gibson.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

AT the meeting of the London County Council on Tuesday the Building Act Committee brought up the following lists of applications under the 1894 London Building Act. Those applications to which consent has been given are granted on certain conditions.*

Lines of Frontage.

St. George, Hanover-square.—A bay window, at the first-floor level, in front of No. 45, Farm-street (Mr. R. B. Marsh for Mr. J. Innes).—Consent.

Dulwich.—An inclosed porch in front of a proposed chapel on the east side of Crystal Palace-road (Mr. T. R. Wonnacott for the trustees of the Primitive Methodist Chapel and Schools, Dulwich).—Consent.

Wandsworth.—One-story shops upon part of the forecourts of Nos. 151, 153, 155, 157, 159, 161, 163, 165, 167, and 169, Balham-high-road (Mr. W. C. Jones for the freeholder and lessees of the property).—Consent.

Fulham.—Projecting pilasters and a pediment over the front entrance to the Red Lion Hotel, No. 492, Fulham-road, Walham Green (Messrs. Doulton & Co. for Mr. H. J. Squires).—Consent.

Hackney, Central.—A one-story shop in front of No. 38, Morning-lane (Mr. J. Hamilton for Mr. E. Stevens).—Consent.

Hampstead.—A church, with a one-story hall at the rear, on the east side of Finchley-road, at the corner of Frognal-lane (Mr. W. Wallace for Messrs. G. B. Bruce and W. R. Galbraith).—Consent.

Lewisham.—A wood and glass enclosed porch in front of Parkfield, Bromley-road, Grove Park, Lee (Mr. J. D. Kemp).—Consent.

Lewisham.—Five houses with one-story shops, on the west side of Hither Green-lane, next a house known as "The Laurels" (Mr. J. Stanford).—Consent.

Marylebone, East.—A five-story bay window in front of Nos. 28 and 29, Little Marylebone-street, (Mr. T. H. Smith).—Consent.

Paddington, South.—One-story shops upon the forecourts of Nos. 19, 21, 23, and 25, Hatherley-grove, Westbourne-grove (Mr. J. W. Chapman for Mr. W. Owen).—Consent.

St. George, Hanover-square.—Pilasters and a projecting hood to the garden entrance at the rear of No. 38, Berkeley-square, to abut upon Farm-street (Mr. J. Aspell for Earl of Rosebery).—Consent.

St. George, Hanover-square—A glass and iron pent in front of No. 8, Hanover-square (Mr. D. A. World for Mesdames Ridout and Levett).—Consent.

Dulwich.—Four one-story shops on the south side of Half Moon-lane, near the Half Moon Hotel (Mr P. C. Davies for Mr. G. W. Riley).—Refused.

Islington, West.—The rebuilding of the Caledonian Arms public house, Caledonian-road, at the corner of Blundell-street (Messrs. Treacher, Son, & Fisher for Mr. J. F. Fitch).—Refused.

Lambeth, North.—Two two-story bay windows in front of proposed new offices at No. 47, Belvedere-road, Westminster-bridge-road (Mr. E. T. Hall for Messrs. Eastwood & Co.).—Refused.

Westminster.†—A glass and iron covered way in front of the main entrance to the Hotel Windsor, Victoria-street (Mr. C. S. Peach for Messrs. J. R. Cleave & Co.).—Refused.

Westminster.—A glass and iron shelter in front of No. 152, Victoria-street (Mr. G. Odone).—Refused.

Width of Way.

St. George-in-the-East.—Buildings on the site of Nos. 59 and 60, Upper East Smithfield, and Nos. 1 to 12 (inclusive), Chambers-square, to abut also upon Upper East Smithfield (Messrs. G. R. Tasker & Sons for Mr. J. Gluckstein).—Consent.

Hackney, South.—A boundary wall on land adjoining Great Eastern Railway, on the east side of Warburton-street (Mr. S. A. Bevan for the Gas Light and Coke Company).—Refused.

Peckham.—That no action be taken with reference to the erection of a building on the north side of Whorlton-road, Peckham Rye, at less than the prescribed distance from the centre of a footpath leading to the Avenue.—Agreed.

Space at Rear.

Southwark, West.—That the Council do, in the exercise of its powers under Section 41 (1) (vi.) of the London Building Act, 1894, allow a modification of the provisions of that section with regard to open spaces about buildings, so far as relates to the proposed rebuilding of the Peacock public-house at No. 24, Holland-street, Blackfriars, at the corner of Ridler's-place, with an irregular space at the rear (Messrs. Gardiner & Theobald for Meux's Brewery Company).—Agreed.

Line of Fronts and Width of Way.

Haggerston.—Workshops, 30 ft. high on the site of Nos. 27, 28, 29, 30, 31, and 32, Cottons-gardens, Hackney-road, Shoreditch (Mr. J. Weibking for Messrs. J. Weibking & Sons).—Consent.

Lambeth, North. — Rebuilding of the York

* Names of applicants are given in brackets. Buildings are new erections unless otherwise stated.

beer-house, No. 52, Kennington-road (Mr. W. Bradford).—Refused.

Line of Fronts and Space at Rear.

Chelsea.—That consent be not given to a modification of so much of the provisions of Part V. of the London Building Act, 1894, with respect to open spaces to be provided at the rear of the buildings, and also with regard to an extension above the diagonal line as directed to be drawn by Section 41 of that Act, so far as relates to the erection of two blocks of seven-story residential flats on the north-east side of Franklin's-row, between the grounds of the Duke of York's school and Turk's-row, and that consent be not given (under Sections 22 and 73 of the Act) to the erection of inclosed porches, bay windows, and angle turrets to the said blocks of flats (Mr. P. Hoffman for Mr. H. Bailey).—Agreed.

Line of Fronts and Construction for Buildings.

Islington, North.—A temporary wood and iron shed erected at the side of No. 36, Aubert-park, Highbury (Mr. J. Hollway for the owners of the Home for Confirmed Invalids).—Refused.

Artisans' Dwellings.

Dulwich.—That the Council do, in the exercise of its powers under Section 42 of the London Building Act, 1894, approve and sanction the plans, delivered by Messrs. Hill & Tyler, of a dwelling-house to be inhabited by persons of the working class, erected on part of a garden at the rear of Nos. 92 to 112, Dunstan's-road, East Dulwich, with an entrance from that road.—Agreed.

Buildings on Cleared Area.

Chelsea.—That the Council, in the exercise of its powers under Section 44 of the London Building Act, 1894, do disapprove of the plans and drawings submitted with the further application of Messrs. Bourchier & Galsworthy on behalf of Messrs. Holt & Sons, for a modification or relaxation of so much of the provisions of Part V. of the Act as relates to a block of residential flats, seven storys high, proposed to be erected on the east side of D'Oyley-street on the site of Nos. 12 and 13, and of part of Nos. 11 and 14.—Agreed.

Means of Escape at Top of High Buildings.

Marylebone, West.—That the Council, in the exercise of its powers under Section 63 of the London Building Act, 1894, do grant a certificate in respect of the means of escape, in case of fire, proposed to be provided for the persons dwelling or employed on the fifth floor of Bickenhall Mansions, at the corner of Gloucester-place, Marylebone-road (Mr. W. H. Scrymgour).—Agreed.

The recommendation marked † is contrary to the views of the Local Authority.

THE LONDON BUILDING ACT, 1894:

IMPORTANT TRIBUNAL OF APPEAL CASE.

THE Tribunal of Appeal under the London Building Act, 1894, sat in the Arbitration-room of the Surveyors' Institution, on Friday, to hear an appeal made by the London School Board against the Notice of Requirement, under Section 78, by Mr. Ellis Marsland, District Surveyor of Camberwell, and served on Mr. Charles Cox, builder, in the matter of a proposed public building, known as public elementary schools, and situate at Leo-street, Old Kent-road. The members of the tribunal sitting were Messrs Arthur Cates, A. A. Hudson, and Penfold. Mr. H. F. Gibson, from the Solicitors' Department of the London School Board, appeared for the appellants, and Mr. Seager Berry, from the Building Act Department of the London County Council, for the respondent.

Mr. Gibson explained that the District Surveyor, by his notice, had attempted to bring under Section 78 of the Act the teachers' offices and retiring room; in other words, he wanted to classify these apartments as habitable and subject to the statutory requirement to be 8 ft. 6 in. in height. The rooms in question were built on half-floors in every school, and were used partly as an office and cloak-room and partly as a retiring and interviewing room by the teachers. No one slept in them. As a matter of fact, they were only actually in use a couple of hours each day. He understood from the District Surveyor's letters, that his objection was based upon the fact that these rooms in the Leo-street school, which was now being built, would only be 7 ft. 6 in. in height, whereas they should, as habitable rooms, be 8 ft. 6 in. as a minimum.

Mr. Seager Berry, interposing, said he took his objection on general grounds.

Mr. Gibson said he was unaware of any other grounds; and, as a fact, was only prepared to meet the objection that the rooms were habitable. To bring them within the definition of habitable rooms, they must, he contended, be used as living rooms. The teachers left the school between 4 and 5 o'clock daily, and the rooms in question were only required by them during the intervals in teaching. It was true small kitcheners were erected in them, and the most that could be said of them was that they were occasionally used by teachers to cook a chop. Beyond that the rooms were only used as a teachers cloak-room, and occasionally as an office for the preparation of returns and so on.

Mr. T. J. Bailey, Architect to the London School Board, gave evidence in support of the appeal. He said these rooms had been provided in every school, of which there were some 800 in London, and were merely used by the teachers as a retiring and cloak room. They were not sanctioned by the Education Department for any other purpose, and were most inexpensively furnished. All that was provided in the way of furniture was a lavatory basin, a table, two chairs, and a set of hat-pegs. No carpet or floor covering of any sort was provided. These rooms in the existing schools varied in height from 7 ft. to 8 ft., and that at Leo-street would, according to the plans, be 7 ft. 6 in. In reply to Mr. Seager Berry, the witness stated that the plans for these rooms were passed by the Education Department, which authority also laid down strict rules as to the purpose for which the room was appropriated. Asked as to what would be the position of the School Board were they forced by a competent authority to increase the height of the rooms, Mr. Bailey replied that it would mean simply this, that more money would have to come out of the rates to enable the building to be raised to such a height as would admit of these rooms being 8 ft. 6 in. There were six windows to the rooms, so the ventilation was ample.

Mr. Seager Berry, for the respondent, said the case opened up a very important question. Their case did not rest wholly upon the point as to whether the rooms were habitable, nor was he bound to confine himself to that objection. A decision under Section 30 of the Act of 1855, which corresponded with Section 78 of the Act of 1894 (Queen *v.* Carruthers, 33 L.J., p. 107—Magistrates' Cases), entitled him to ask the Tribunal to take cognisance of the general use to which the rooms were put. It was noteworthy that the Act of 1894 increased the statutory minimum height to 8 ft. 6 in., so it would be seen that the tendency of the Legislature was to increase the height of habitable rooms. But though these rooms might not be habitable in the strict sense suggested by Mr. Gibson, they certainly had the characteristics of a habitable room. A cooking range was a strong element in saying that it partook of the nature of a living-room. They might have all the staff of teachers cooking a chop at the same time, which would certainly render the 7 ft. 6 in. room in which it took place very disagreeable. The least the Tribunal could do would be to exercise its control by laying down that the room should not be used for purposes beyond retiring and interviews.

Mr. Bailey, in reply to the Chairman, said that after the school had been constructed the purposes for which these rooms were appropriated were not allowed to be altered.

Mr. Ellis Marsland, the respondent, said he was a school manager for some years, and his experience was that these rooms were used by committees of managers for their meetings. He had raised the point in this instance as a test case.

Mr. Walter C. Williams, chairman of the managers of the Westmorland-road (Walworth) group of schools, stated that he had known these rooms to be used for evening classes as well as for committee meetings of managers. He had heard complaints from teachers that they were in winter very "stuffy," and in summer uncomfortably hot.

Mr. Gibson reminded the Tribunal that the schools were under the strict supervision of the Inspectors of the Education Department.

After consultation with his colleagues, the Chairman said the Tribunal coincided with Mr. Berry's submission that their control extended beyond the mere question as to whether the rooms were habitable. They had, in fact, a wide discretion, but they realised that they were dealing with buildings directly controlled by a public body under a Government Department. They had taken into consideration the general use to which these rooms were put, and, on the understanding that the uses to which these rooms were put should be controlled, they allowed the appeal. There would be no order as to costs.

The Student's Column.

THE CALCULATION OF STRENGTH OF MATERIALS AND RESISTANCES.—IX.

WE closed our last chapter with an explanation of the coefficient of resistance, or the ultimate possible strength of each individual fibre of the material. This is not exactly the strength which the material exerts in resistance to either tension or compression, as each fibre in the cross section of a beam has to resist more or less of either or both of these stresses.

The coefficient of resistance for any particular material may be found experimentally, it being 18 times the centre breaking load of a beam of a given material 1 in. square and 1 ft. span, supported at both ends.

The following are the coefficients of resistance for some of the most frequently used materials:—

Wrought Iron,	20	tons per	square inch.
Cast Iron	16	,,	,,
Steel	30	,,	,,
Fir	$3\frac{1}{2}$	,,	,,
Oak	$4\frac{1}{2}$	,,	,,

We have pointed out that it is only the fibres which are furthest from the neutral axis that are able to exert their ultimate or greatest strength in resisting the rupture of the beam, and that the resistance of any other fibres depends upon their distance from the neutral axis.

This we may express thus:—

$$f = \frac{C}{t} t'$$

Where f is the actual resistance afforded by any given fibre in tons per square inch, C, the coefficient of resistance, t', the distance from the neutral axis to the given fibre, and t, the distance from the neutral axis to the furthest fibre. The actual resistance of any given fibre in tons will, of course, be its resistance in tons per square inch, multiplied by its area in square inches, or

$$F = fa$$

Substituting the value of f from our former expression, we have

$$F = \frac{C}{t} t' a$$

The moment which is the measure of the resistance that any given fibre opposes to the rupture of the beam is plainly its actual resistance, multiplied by its perpendicular distance from the neutral axis, or

$$r = Ft'$$

Substituting the value of F, which we have found, we get

$$r = \frac{Ct'a}{t} t' = \frac{C}{t} t'^2 a$$

The moment of resistance of the entire cross section of the beam is, therefore, the sum of the moments of resistances of the individual fibres. This sum of the moments of resistances of the individual fibres is the moment of inertia to which we have already referred in Chapter VII. We therefore have as our expression for the moments of resistance of the entire cross section of the beam

$$R = \frac{C}{t} I$$

Where R is the moment of resistance, C the coefficient of resistance, t the distance from the neutral axis to the furthest fibre, and I the moment of inertia, which, as we have already explained, is dependent upon the shape of the section, and not the material of the beam, and the value of which, for the most usual forms of section, we have given in Chapter VII.

For beams of square or rectangular cross section the expression given above becomes

$$R = \frac{c\,a\,d}{6}$$

Where R is the moment of resistance, c the coefficient of resistance, a the area of cross section in square inches, d the depth in inches.

In rolled iron or steel beams the moment of resistance may be approximately found thus:—

$$R = (a + \tfrac{1}{8} a') \times d \times E$$

Where R is the moment of resistance a is the area of cross section of one flange, a' the area of cross section of web, d the depth of beam, E the elastic limit of iron or steel in pounds per square inch. All the dimensions are to be taken in inches. The area of the web is its thickness multiplied by the extreme depth of the beam, and the area of one flange is half the difference between the area of the whole beam and the area of the web. For average rolled iron the elastic limit may be taken at 10 tons per square inch, and for steel at 16 tons per square inch.

We have already pointed out how the value of the moment of inertia for irregular-shaped beams may be found by finding the moments of inertia for any number of rectangles into which the section may be divided. If it is not possible to divide the section into rectangles as may occur in the case of beams with an irregular curved section, an approximation sufficiently near the real moment of inertia, may be obtained by dividing an irregular cross section into parallel strips which approximate to rectangular form. Care must be taken that these separate moments of inertia are all referred to the neutral axis of the whole section, and the position of this neutral axis in any section, however irregular, may be ascertained by

cutting out a figure in card, or a thin sheet of metal, and balancing it over a straight edge. The horizontal line on which the model of the section balances is the horizontal neutral axis of that particular section. The student is now in a position to calculate the moment of rupture for any arrangement of loads, and the necessary cross section of a beam of any of the materials for which we have given the coefficient of resistance to properly resist the reaction resulting from the loads in each particular case. We, therefore, cannot do better than illustrate this by some examples. Let us suppose a beam 20 ft. span has a load of five tons upon it 4 ft. from one end, and a load of six tons 5 ft. from the other end, we will then proceed to find the reaction of each support, that is, the portion of the load which comes upon each. Calling R_1 the reaction of the support close to the load of five tons, and R_2 the reaction of that close to the six tons, we should have

$$R_1 = \frac{5\times16}{20} + \frac{6\times5}{20} = 4+1\tfrac{1}{2} = 5\tfrac{1}{2} \text{ tons.}$$

$$R_2 = \frac{5\times4}{20} + \frac{6\times15}{20} = 1+4\tfrac{1}{2} = 5\tfrac{1}{2} \text{ tons.}$$

Now let us take another example. A beam 24 ft. span has a load of four tons evenly distributed over a length of 6 ft. from one support, and a load of six tons evenly distributed over a length of 8 ft. from the other support, with a concentrated load of three tons midway between the distributed loads :—Again calling R_1 the reaction of the support next to the four-ton load, and R_2 that of the support next to the six-ton load we should have

$$R_1 = \frac{4\times21}{24} + \frac{3\times13}{24} + \frac{6\times4}{24}$$
$$= 3\tfrac{1}{2} + 1\tfrac{5}{8} + 1$$
$$= 6\tfrac{1}{8} \text{ tons.}$$
$$R_2 = \frac{4\times3}{24} + \frac{3\times11}{24} + \frac{6\times20}{24}$$
$$= \tfrac{1}{2} + 1\tfrac{3}{8} + 5$$
$$= 6\tfrac{7}{8} \text{ tons.}$$

These two examples will be sufficient to show how in every case the reactions of the supports are to be found. We then wish to find the cross section of the beam which would be necessary to properly resist the stresses represented by these reactions. In either case the point at which the greatest stress comes upon the beam is at the centre of gravity of the combined loads. We note that in the latter case the reactions of the supports are unequal, and, therefore, the centre of gravity is not at the middle of the span. We can find the position of this centre of gravity in two ways, either by working out the position from the centres of gravities of the various loads, or, what is simpler and better, from the reactions of the two supports.

The centre of gravity will be so situated that its distance from either support will be in the inverse ratio of the resistances or loads on the supports, and may be found by multiplying the whole span by one of the resistances, and dividing by their sum.

Thus the distance of centre of gravity from R_1 is

$$\frac{24\times6\tfrac{7}{8}}{13} = \frac{165}{13} = 12\tfrac{9}{13} \text{ foot.}$$

In the practical calculation of girders with unevenly distributed loads it is very useful and most expeditious to adopt a graphical method of representing reactions of the supports and the moment of rupture caused by these. Taking first of all examples in which a single load is applied to a beam, the maximum bending moment is of course at the point of application of the load, and finding the amount of

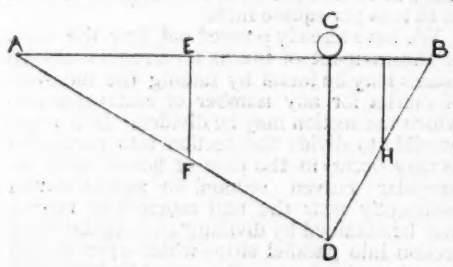


Fig 1.

this from the reactions, we can set it up graphically as shown in fig. 1 to any scale we please. Then joining the end of this line to each point of support, we have a triangle, A D B, representing graphically the bending moment at different points in the beam. And the value of this bending moment at any point in the beam may be obtained by measuring the vertical height from the base of the triangle to one of the sides, as at E F or G H, on the same scale as we originally drew our maximum bending moment C D. With a number of loads we may draw a similar triangle for the bending moment due to each particular load as in fig. 2, the triangles A C B, A E B, A G B, and the

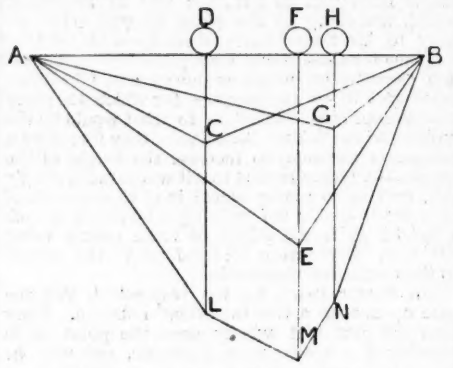


Fig 2.

value of the bending moment at any particular point will be found by adding together the vertical distances from that point to the sides of the three triangles. Drawing such lines from points D, F, H, and setting out their values at L, M, N, we may join up the polygon A L M N B, which will represent the bending moment throughout the beam. The case of a distributed load is not perhaps quite so simple. If the load is distributed evenly over the whole span of the beam, the greatest bending moment is of course once again at the middle of the beam. And if we divide the whole of the load into any number of equal portions and find the value of the bending moment for each, and then represent them graphically on the same scale, we shall then find that the line bounding the ends of the lines representing these bending moments will be a parabolic curve. Or if we draw the line representing our greatest bending moment on such a scale that this is less than one-eighth of the span, a circular arc passing through this point and the extremities of the spans is sufficiently near for practical purposes. If the distributed load extends over a part only of the span, the parabolic curve extends only to the part of the span over which the load is distributed, and from these points we should have a straight line joining the extremities of the span. What we have said with regard to beams applies also to cantilevers, these being considered as beams fixed at one end ; and the load on a cantilever may therefore be graphically represented in a similar manner to that which we have explained for beams.

BOOKS RECEIVED.

HANDBOOK ON THE WORKMEN'S COMPENSATION ACT. By M. Roberts-Jones (Cardiff : *Western Mail* Office).

THE BASES OF DESIGN : By Walter Crane. (London ; Geo. Bell & Sons ; 1898)

LAW AND PRACTICE OF COMPENSATION : By H. C. Richards and J. P. H. Soper. (Sweet & Maxwell.)

OBITUARY.

MR. D. TAYLOR.—The death of Mr. David Taylor, contractor, took place at Linfield, Methven, Perth, recently. The deceased was born in 1812. About 1858 he started contracting, being the chief partner in the firm of David Taylor & Sons, now the firm of D. & R. Taylor. At that time deceased devoted his efforts more especially to agricultural drainage. About twenty-five years ago he carried out the sewer work of Bridgend, and afterwards Barnhill, while at various times he has been entrusted with contracts in connexion with sewers in Perth. The extension of the railway at the Glasgow-road some thirty years ago was carried out under his management.

PROPOSED NEW INFIRMARY, ALCESTER, WARWICKSHIRE.—Mr. W. H. Ward has prepared sketch plans for a proposed new infirmary at Alcester. The estimated cost of the new buildings is 5,820*l.*, and it has been decided to apply to the Local Government Board for a loan of 7,000*l.*

GENERAL BUILDING NEWS.

HOLY TRINITY CHURCH, ROEHAMPTON.—A church of considerable size at Roehampton, dedicated to Holy Trinity, was on Saturday opened by the Bishop of Rochester. The late Duchess of Teck laid the foundation stone in April, 1896. It stands on rising ground and is a prominent object from Roehampton-lane and the Common. Its chief external feature is a tower and spire about 200 ft. high, still enveloped in scaffolding, but nearly completed. The chief entrance to the church is under this tower, placed at the north-west angle of the nave, and a second entrance has been placed on the east side of the north transept to give access to the chancel, vestries, and side chapel. Opposite the tower and spire, at the south-west angle, is the baptistry, with a semi-circular apse. The body of the church consists of a nave of five bays, and chancel of equal width ; the nave has side aisles, and on the north is a transept which also serves as a nave for the small side chapel on the north side of the choir. On the south side of the choir are vestries, an organ chamber over, and heating chamber below. The style adopted for the architecture is that of the latter part of the thirteenth century, Early English, with some Decorated detail in the window tracery. There are large windows at the east and west ends, and two in the north transept. The rest of the church, nave, clearstory, baptistry, and side chapels, has lancets. The east window has been filled with stained glass by Mr. C. E. Kemp, and the lancets in the baptistry and side chapel by Messrs. Bacon Bros. The chief feature of the interior, however, is the lofty stone open screen, carried the full height of the church, which forms the division between nave and chancel. The dwarf wall on which it rests has figures in niches against a gold mosaic background. Although Kentish rag has been used for the walls, in conjunction with dressings of Corsham stone for the exterior, the interior has had the somewhat cold effect of the Corsham stone considerably relieved by a free use of red brick, and the woodwork of the roofs of nave and chancel, of deal and of the "waggon" type, have been stained green with very pleasant results. Besides the stained glass, however, already mentioned, there is already a great deal of decorative work in the church—an alabaster reredos with sculptured panels of the Last Supper, and the Crucifixion elaborately coloured ; copper and brass altar rails ; a cross and other metal work on the screen ; and rich dossel hangings to the altar in the side chapel. Panels have also been introduced over the nave arcades, and at the west and east ends, which will in time be filled with mosaic or treated in fresco. The interior will then have a very rich effect. Electric light has been introduced, and the church is heated on the low-pressure system. The architect is Mr. Geo. H. Fellowes-Prynne. Mr. G. Jones was the clerk of works. The contractor was Mr. A. Porter, of Tottenham. The carving of the reredos, altar, pulpit, stalls, screen, and font, was carried out by Messrs. H. H. Martyn & Co., of Cheltenham ; the altar rails and chancel gates by Messrs. Singer, of Frome. The altar panels were painted by Mr. E. A. Fellowes-Prynne. The reredos was coloured by Messrs. Fouracres, of Plymouth, under the superintendence of the same artist. The seating was carried out by Messrs. Lonnie & Co., of Kennington, and the electric lighting by Messrs. Laing, Wharton, Down, & Co. The heating work was carried out by Messrs. Dargue, Griffiths & Co., of Liverpool.

PROPOSED CHURCH, NEWPORT.—A new parish of St. John the Baptist is being formed at Newport, Monmouthshire, for which a church is to be built to accommodate 700 persons. The architect is Mr. F. R. Kempson, of Hereford and Cardiff.

PARISH CHURCH, MOLDGREEN, HUDDERSFIELD.—On the 15th inst. a bazaar was opened in Huddersfield Town Hall to raise funds for the completion of Christ Church, Moldgreen. The church has no chancel and no vestries. Plans have been prepared by Mr. G. F. Bodley, which provide for an extension of the nave and the erection of the chancel and vestries.

CHURCH EXTENSION, SMALL HEATH.—It is proposed to enlarge St. Aidan's Church, Herbert-road, Small Heath, The extension will consist of carrying the nave and aisles westward for another three bays, and this work will be carried out in accordance with the designs of Mr. T. F. Proud, who was the architect of the church. At present the building affords sitting accommodation for 400 worshippers, but when the extension has been effected there will be sittings for 900 persons.

ADDITIONS TO MOSELEY PARISH CHURCH, NEAR BIRMINGHAM.—Moseley Parish Church has just been reopened after enlargement. The alterations have been carried out from the designs of Mr. J. A. Chatwin. A few years ago a north aisle was erected, and a small apsidal chancel was added. This was found to be a mistake, and it was to rectify it that the plan suggested by the architect was adopted, which provides a large chancel, a chancel aisle, and also a south transept, which will provide for about 100 additional sittings. The plan was prepared with the view of extending the improvements hereafter by dividing the present body of the church into a nave and south aisle. The chancel and transepts externally are faced with Bromsgrove stone. The floors under the seats are laid with wood blocks, while the portion of the chancel within the

altar rails is paved with glass mosaic. The roofs are covered with green Westmoreland slate. Messrs. Collins & Godfrey, of Tewkesbury, were the contractors. The outlay has been between 2,000*l.* and 3,000*l.*—*Birmingham Post.*

CHESTERFIELD PARISH CHURCH.—The Duchess of Portland visited Chesterfield on the 15th inst., and opened a bazaar in aid of the Parish Church Restoration Fund. Mr. Temple Moore, who was called in to make an examination of the church and steeple two and a half years ago, having reported that the sum of 15,000*l.* would be required to restore the entire structure, it was decided to proceed with the work in sections. The Foljambe Chapel, at the south-eastern corner of the church, has been restored, the walls having been either rebuilt throughout, or refaced, and the old roof replaced. A recent survey has convinced the architect, it is stated, that operations must be commenced without delay upon the spire. In his report to the Restoration Committee Mr. Moore writes : "It is impossible to place any reliance on many of the timbers, and it is imperative that the work of overhauling and restoring the spire should be undertaken at once, or it should be taken down. In saying 'at once' I do not mean several months hence. The work is a very important one, and will take some months to carry out." The money raised at the bazaar will be spent in securing the safety of the spire.

CHURCH, CARLISLE.—Steps are being taken at Carlisle towards the erection of a new church, parish-rooms, and parsonage on the east side of the city, near the Warwick-road, and also towards the erection of a mission-room on the west side of the city, at Newtown. The new church is to cost 7,000*l.* Mr. C. J. Ferguson is the architect.

NEW CHURCH, BRAEMAR.—The Church of St. Margaret of Scotland, Braemar, Aberdeenshire, Scotland, is now to be constructed in permanent form. The external walls will be of Braemar stone, with dressings of freestone from Rhynie, Aberdeenshire. The architects are Messrs. W. Bucknall & J. M. Comper, Westminster, London.

CHURCH, EDINBURGH.—The building committee of St. Martin's Episcopal Church, Edinburgh, met in the Representative Council Chambers, Queen's-street, Edinburgh, on the 3rd inst., to consider plans for a new church and church halls, prepared by Mr. Robertson, architect, Inverness. It was decided meantime only to proceed with the nave, aisles, and vestries in connexion with the church, with school halls and class-rooms under the building. Mr. Robertson prepared a set of amended plans, embodying the suggestions of the committee, which were submitted at a meeting of the building committee held in the Representative Council Chambers on the 7th, when they were approved of and accepted.

METHODIST CHURCH, MORLEY, YORKSHIRE.—A new chapel in connexion with the United Methodist Free Church was opened at Morley recently. The chapel has been built from designs prepared by Mr. T. A. Buttery, architect, of Morley, at a cost of 2,500*l.* The building provides accommodation for 577 adults, and is lighted by electricity.

RENOVATION OF ABERUTHVEN FREE CHURCH, PERTHSHIRE.—Aberuthven Free Church was reopened recently after restoration. A new system of hot-water heating has been introduced throughout the church on the low-pressure system, and the building has also been refloored. The contractors were :—For heating, Messrs. Boyd & Son, Paisley; joiner, Mr. Peter M'Ewan, Aberuthven; painter, Mr. A. Dewar, Dunning; slater, Mr. Duncan. Mr. James Marshall was the architect.

PRESBYTERIAN CHURCH, BANGOR.—A new Presbyterian church is to be erected in Bangor on a site in the Hamilton-road. The general plan of the church is horseshoe in shape. The first block will accommodate about 400 on the ground floor and about 300 in the galleries, and the future block, in the form of a second transept, will give accommodation for about 300, so that the church is designed to accommodate a congregation of 1,000. The architect for the building is Mr. Wm. J. W. Roome, of Belfast.

WESLEYAN CHAPEL, BRIGHTSIDE, SHEFFIELD.—A new Wesleyan chapel, erected in Dearne-street, Brightside Village, was opened on the 17th inst. Mr. W. J. Hale was the architect. There is seating accommodation for 375 persons. A small gallery extends along the end of the building above the entrance. Vestries have been built under the chapel, and the old school-room is to continue in use. The contractors were Messrs. Powell & Son, and the heating apparatus was laid down by Messrs. W. Truswell & Sons.

METHODIST CHAPEL, BARROW-IN-FURNESS.—The memorial stone has just been laid of new chapels and schools at Barrow-in-Furness. The premises will cost about 6,500*l.* when completed. The plans include a chapel to seat 784, chiefly on the ground floor, a school for 500, and an infants' room to accommodate 100. There will be seven class-rooms, two vestries, and a church parlour. The contracts are being carried out by local tradesmen under the superintendence of Messrs. Waddington & Sons, of Burnley and Manchester, the architects.

SCHOOLS, MOUNT PLEASANT, SOUTHAMPTON.—The new Mount Pleasant Schools have just been opened by Sir George Kekewich. The architect was Mr. J. H. Blizzard, Architect to the Southampton School Board, and the work has been carried out by Messrs. H. Stevens & Co., of Southampton.

ST. EDMUND'S SCHOOL, CANTERBURY.—The new junior school, recently added at St. Edmund's School, St. Thomas's Hill, Canterbury, was opened on the 10th inst. The building has been erected from the designs of the architect, Sir Arthur Blomfield, A.R.A., the contractor being Mr. W. J. Adcock, of Dover and Canterbury. The building consists of class-rooms, dining-room, infirmaries, matron's and master's-rooms, &c., and a dormitory upon the second floor.

WAREHOUSE, GOLDEN-LANE, CITY.—A new warehouse for Mr. S. H. Weiler has been erected in Golden-lane. The premises front upon Golden-lane, Cripplegate-street, Charles-street, Brackley-street, and Bridgewater-street, and stand upon an area of about half an acre. The new buildings consist of basement and five floors over, with flat asphalted roofs. On the top floor are kitchens for the use of the 300 employés. The flat roof has been railed in to serve as a promenade. The electric light has been installed, and two fireproof staircases lead directly into the main street. The Hydraulic Company's mains are also connected with the building. Mr. George Vickery is the architect, and Messrs. Lawrence & Sons the builders.

PUBLIC WASHHOUSES, GLASGOW. — A public washhouse is to be erected at Glasgow on ground acquired at the west corner of Bain-square and Gallowgate. The site will be occupied by three tenements of dwelling-houses and shops with frontages to Gallowgate and Bain-square. The washhouse will be situated at the rear of the tenements, the roof of the erection forming a back court, to which access is gained from the first landing. The washing stalls number forty-four. With regard to the tenements surrounding the washhouse, these are estimated to cost 7,270*l.* The building will be four stories high, and will contain twenty-four dwelling-houses of two apartments and three houses of single apartments. The plans were prepared by Mr. A. B. M'Donald, City Architect.

PROPOSED OPERA HOUSE, BARNSLEY.—At a meeting of the Barnsley Town Council on the 9th inst., the plans of the proposed new opera house to be erected in Eldon-street were approved and passed. The plans have been prepared by Mr. John P. Briggs, of London. The site allows of three sides open to the roadway. Seating accommodation has been provided for 1,400. The theatre will be fireproof throughout, and the entire house will be provided with electric light. The whole of the auditorium, entrances, saloons, and dressing-rooms will be heated by hot-water.

CO-OPERATIVE BOOT AND SHOE MANUFACTORY, RAUNDS, NORTHAMPTON.—An Army boot and shoe factory was opened on the 12th inst. at Raunds by the Crispin Co-operative Society. The building, which is of three stories, has been erected on a plot of land on the Cornbrash Estate, to the south of Hill-street. The architect was Mr. T. R. Lovell, and the contractor Mr. W. H. Lovell, of Raunds.

NAVAL BARRACKS, KEYHAM, PLYMOUTH.—The Admiralty have long contemplated an extension of the existing accommodation at the Seamen's Barracks at Keyham. They have now resolved on a scheme, and the contract, which will eventually involve the expenditure of upwards of £200,000, and will take some three years to carry out, has been secured by Mr. A. R. Debnam, of Plymouth. The new buildings are to afford accommodation for another 1,000 officers and men. The new premises will be erected on land to the S.E. of the existing building, and will include an officers' mess-room and hall, surmounted by a tower 120 ft. high. The whole of the new work will be in architectural keeping with the present buildings. It will come under the supervision of Major H. Pilkington, C.B., R.E., the Civil Engineer-in-Chief of the Navy Loan Works. The work will be begun almost immediately.—*Western Mercury.*

FREE LIBRARY, HUDDERSFIELD.—The first portion—Reading and New Rooms—of the Huddersfield Free Library and Art Gallery was opened on the 14th inst. Under the superintendence of Mr. W. Cooper, architect, the adaptation of the building, for the purposes of a Public Library and Art Gallery, has been carried out. The rooms are situate on the two upper floors of Somerset-buildings, the approach being by a wide staircase from Church-street. The main floor consists of a central hall two stories in height, with glazed ceiling lights over. Around the hall on this floor are placed the lending library, 36 ft. by 32 ft.; reference library, 30 ft. by 18 ft.; news-room, 38 ft. by 19 ft.; magazine-room, 21 ft. by 17 ft.; and ladies' reading-room, 21 ft. by 17 ft. The lending library is designed for "the open access system." A dwarf screen, to which the entrance and exit doors are fixed, divides the lending library from the hall. At the back of this screen, on the lending library side, is fixed the librarian's counter. The book stacks fixed in this department have been supplied by Messrs. W. Lucy & Co., Limited, Oxford, and are of cast-iron. The rooms on the upper floor are entered from an open balcony which extends around the upper part of the central hall, these comprise the Art Gallery, 70 ft. by 18 ft., cloak-room, lavatory, also rooms for librarian, committee, storage and book repairs, &c. The Art Gallery is lighted from the north. Caretaker's rooms are placed on the second floor. The hydraulic lift, which is fixed in the well of the staircase, may be made use of for service purposes to each floor. The decorations have been carried out under the direction of Mr. G. F. Armitage, of Altrincham. The rooms are lighted by electricity, and heated by hot-water on the low-pressure system. The works have been carried out by the undermentioned firms :—Mason, Messrs. Graham & Jessop; joiners, Messrs. Crowther & Wilkinson; cabinet maker, Mr. Henry Stephenson; and electric light, Messrs. R. Holliday & Sons.

CONSTITUTIONAL CLUB, PORT TALBOT. — The Constitutional Club at Port Talbot was opened recently. The club premises are situated between Port Talbot Station and the Town of Aberavon. On the ground floor are a shop and premises, let to the Metropolitan Bank (of England and Wales) and in the centre of the building is the entrance hall to the club, laid with encaustic tiles. At the rear is a hall capable of seating 300 persons. On the first floor is a billiard-room. On the same floor are a large reading-room and dining-room. On the second floor are committee-rooms and the stewards' rooms. The premises are built with red brick and Bath stone facings. The architect was Mr. J. A. James, Port Talbot, the builder being Mr. John Davies, Aberavon.

MISSION AND PARISH ROOM, CUTNALL GREEN, WORCESTERSHIRE.—A mission and parish room, in connexion with the parish of Elmbridge, was opened recently at Cutnall Green. The architects were Messrs. Sheppard & Sons, of Worcester, and the work was carried out by Messrs. Emus & Harris, of Droitwich.

PUBLIC WASH-HOUSES, DUNDEE.—The public wash-houses in Guthrie-street, the first of a series of such conveniences which the Town Council of Dundee propose to erect in various districts of the city, have just been opened. The building is situated to the north, and adjoining the public baths in Guthrie-street. The entrance is to the west of the door of the baths, access being gained to the wash-house by means of a sloping corridor. By this arrangement the office is situated between the entrances to the two departments, so that the clerk is able to attend to both at the same time. The wash-house is 57 ft. in length and 45 ft. in breadth, and, like the corridor, is paved with granolithic. The roof is supported on iron couples. Washing is carried on in twenty-four stalls, arranged in four transverse lines, with a drying chamber between each two rows. The stalls are 6 ft. long and 5 ft. broad, and are separated from each other by iron partitions. The other accommodation includes a lavatory, waiting-room, and private room for depositing bundles of clothing. The designs were prepared by Mr. Mackison, the Burgh Engineer. Mr. Allen acted as clerk of works. The cost of the establishment has been 1,700*l.*, and the principal contractors were :—Mason, David Crichton; joiners, Gove & Cameron; slaters, Ramsay & Reid; plumbers, John Crighton & Sons; plaster and granolithic work, Reoch & Kilgour; painters, Petrie & Greig; iron work, John Jack; engineers, Cooper & Greig.

PARISH COUNCIL CHAMBERS, STEVENSTON, AYR. New chambers have been erected by the Parish Council in New-street, from plans prepared by Mr. Hugh Thomson, architect, Saltcoats.

SYNAGOGUE, GRAHAM-STREET, EDINBURGH.—The new Jewish Synagogue, Graham-street, Edinburgh, was consecrated a few days ago. The building is an adaptation of the new Greyfriars Free Church, and the architect for the reconstruction was Mr. W. N. Thomson, Leith. The electric light installation is by Messrs. James Gray & Son. Messrs. Dobie & Son carried out the decorative works.

TEMPORARY HOSPITAL BUILDING FOR BROMSGROVE, WORCESTERSHIRE.—A meeting of the Bromsgrove, Droitwich, and Redditch Joint Infectious Hospital Committee was held at the offices of the Clerk recently, when a report was presented from the Building Sub-Committee, in which it was stated that the Committee had provisionally engaged Mr. Gadd, architect, of Bromsgrove, to prepare a specification for the wood and iron building referred to in their last report, and to get in tenders for the same, and to superintend such other work as is to be carried out for the Committee.

WEST RIDING COUNTY HALL, WAKEFIELD.—The new County Hall for the West Riding County Council was opened at Wakefield on Tuesday. The new building, which has cost about 120,000*l.*, covers an area of some 45,136 square feet. It is situated in close proximity to the Town Hall and Sessions Courts, and faces towards Bond-street. It has also frontages to Cliffe-parade, Burton-street, and Hardy-street. The architects were Messrs. Gibson & Russell, of London, and the contractors were Messrs. Armitage & Hodgson, Mr. A. E. Marsh being the clerk of the works. The building has been described and illustrated in the following issues of the *Builder* :—April 29, 1893; November 10, 1894; March 9, 1895; June 6, 1896; and December 5, 1896. The floors and ceilings were constructed by Messrs. S. Ferguson & Son, of Carlisle, on their fire-resisting system. Sub-contracts have been carried out by the following :—Heating, Mr. Fredk. Milan, of Huddersfield; lighting, Mr. T. Harding Churton, of Leeds (under the direction of Mr. S. A. Court, consulting electrical engineer, London); and wrought-iron gates and stairs' balusters, Mr. G. W. Singer, of Frome.

MANSION, BEXHILL-ON-SEA.—The tender of Mr. A. H. White, of St. Leonards-on-Sea, has been

accepted at 1,292*l.*, for stabling at Sir Edward Mallet's mansion, "Wrestwood," near Bexhill-on-Sea. Mr. White's contract for the house (at present being built) was 8,483*l.* Mr. G. H. Gray, of Bexhill-on-Sea, is the architect.

SANITARY AND ENGINEERING NEWS.

Proposed New Sea Wall, Herne Bay.—It is proposed to construct a new sea wall at Herne Bay at a cost of about 19,000*l.* Mr. Baldwin Latham will be the engineer for the work.

Local Sewers in London.—The Main Drainage Committee of the London County Council have sanctioned, subject to a condition recommended by the Engineer, the construction of the following local sewers:—Fulham: 596 ft., 1,242 ft., 584 ft., and 586 ft. of 12-in. pipe sewer in Allestree-road, Bronsart-road, Mablethorpe-road, and Rowallan-road, Munster-road, respectively; 290 ft. of 12-in. pipe sewer in Fulham Park-gardens, Burlington Estate; and 176 ft. of 12-in. pipe sewer in Broughton-road, Stephendale-road.

Drainage Scheme, Batley.—Colonel A. J. Hepper, a Local Government Board Inspector, held an inquiry at the Batley Town Hall on the 9th inst. in connexion with the Corporation's application for sanction to borrow a sum of 13,494*l.* for works of surface water drainage. The Town Clerk (Mr. J. H. Craik) and the Mayor (Alderman J. W. Blackburn), with the Borough Surveyor (Mr. O. J. Kirby), represented the Corporation. Mr. Craik, in opening the proceedings, explained that the Corporation proposed to introduce a proper system of surface drainage in nearly 200 streets and roads in the borough.

Sanitary Work, &c., St. Annes, Lancashire.—Mr. G. Hodgkinson, Sanitary Inspector and Surveyor to the St. Anne's Urban Council, in his annual report, states that during the year the Council have had under consideration seventy-nine plans, embracing two alterations to chapels, 152 new houses, ten shops, sixteen workshops, &c., one private school, five street plans, three sewers for streets, one new hotel, one hotel extension, a small hospital to the Ormerod Home, farm building, and alterations to fifteen houses. Private street works have been carried out as follow:—St. Andrew's-road South, Wood-street, Back St. Anne's-road (third portion), Orchard-road; and contracts have been let for St. Anne's-road West, St. Alban's-road (second portion), Nelson-street, and Church-road. The main drainage system has been extended, the following extensions having been made with Hassall's double-lined pipes:—Headroomgate-road, 2,000 ft. 12-in pipes; by the Fairhaven Estate Company, Fairhaven-road and promenade, 1,530 ft. of 18-in. pipes; Derbe-road, Tarsus-place, and Alexandra Drive, 870 ft. of 9-in pipes; by J. T. Clifton and frontagers, St. Alban's-road and Alexandra-road, 430 ft. of 12-in. pipes; and new streets 970 ft. of 9-in. pipes. The laying-out of the Esplanade in gardens and pleasure grounds, and the erection of ladies' pavilion, children's shelter, band stand, fountain, shelter, seats, with underground conveniences, has been carried out, and the work of extending the Promenade-road to Fairhaven is being pushed on. A new convalescent home has been completed and opened.

Sewerage Scheme, Walsall Wood.—The memorial stone of the Shelfield pumping station, in connexion with the Walsall Wood sewerage scheme, was laid on the 15th inst. The engineer is Mr. H. B. Nichols, Birmingham. The scheme provides for a district having a population of between 6,000 and 7,000. The cost of the scheme will be about 11,700*l.* Mr. H. Holloway, Wolverhampton, has the contract.

STAINED GLASS AND DECORATION.

Window, St. Mary's Church, Long Ditton.—A stained glass window, by Messrs. Lavers & Westlake, has been placed in the south transept of St. Mary's Church, Long Ditton, as a memorial of the Queen's Diamond Jubilee. The window comprises four long lights, each with four panels, containing over thirty figures, and a circular light in the apex, with small pieces on either side.

Window, Pershore Abbey Church.—A window of Munich glass has just been inserted in Pershore Abbey, consisting of three large lancets with nine separate scenes illustrating the life of St. Peter. The work has been carried out in accordance with the Early English style of the church, under the supervision of the architect, Mr. W. Lunn, of Great Malvern, by Messrs. Mayer & Co.

Window, St. Paul's Free Church, Dundee.—A stained-glass window has been erected in Free St. Paul's Church, Dundee. The subjects represented in the window are Faith, Hope, and Charity, and the work was entrusted to Messrs. Clayton & Bell, London.

Prayer Desk, Salisbury Cathedral.—A richly carved prayer desk has recently been placed in the choir of Salisbury Cathedral, before the chair used by the Bishop for ordinations, &c. The desk is of Italian walnut, has traceried ends surmounted with conventional foliage; and the group in front depicts Moses with his hands staid up by Aaron and Hur (Exod. ch. 17, v. 12.) The work was executed by Mr. T. Rudge Salcott, Clapham Common, from the designs of Mr. E. Doran Webb, architect, of Salisbury.

FOREIGN.

France.—M. Denys Puech, sculptor, has just finished the model of the monument which is to be erected to the memory of Francis Garnier. The expenses are to be defrayed by subscription. The monument consists of a bust of the explorer, in naval uniform, resting on a pedestal the six sides of which are ornamented with oriental architectural ornaments borrowed from the Musée Guimet. Around the pedestal are grouped three figures, the "Seine," being offered the products of Indo-China by "Cambodia," and "Geography" who holds up to Garnier an oak branch. The pedestal is being carried out from designs by M. Vaudremer. The monument is to be cast in bronze and erected in the Avenue de l'Observatoire, between the statue of Marshal Ney and the Carpeaux fountain. The inauguration will take place on July 4.——The Carnavalet Museum has just been enriched by a fine picture of Debricourt's representing the preparations for the Federation fête in 1790. One other picture is also to be placed there; it is by M. Luigi Loir, and represents the fête at the Hôtel de Ville, in honour of the Czar, 1896.——The administration of the Ville de Paris is now preparing an account of the visit of the Russian Sovereigns. This publication, which is to be handsomely bound, will be illustrated by MM. Paul Mauron, Lefort, Coutry, Ondart, Focillon, and Claude Faivre.——M. Gustave Larroumet, late Director of the Beaux-Arts, will very probably succeed Count Henri Delaborde as permanent Secretary at the Académie des Beaux-Arts.——The annual exhibition of painting and sculpture of Russians living in Paris has just been opened.——The Administration of the Ville de Paris is contemplating the erection of the equestrian statue of Joan of Arc, by M. Paul Dubois, in the empty space in the centre of the Place Saint Augustin.——There is also a scheme to erect somewhere in Paris, though the site is not yet determined upon, an equestrian statue of General Washington. The statue is by a young American sculptor (Mr. French), and has been paid for by American subscription.——M. Roussi has been elected President (for 1898) of the Society of Architects who have received diplomas from the Government. M. Bonnier has been elected Vice-President. —— The Administration of the Département de la Seine has just opened a landscape competition, with or without figures, for the decoration of the Salle des Fêtes in the Mairie at Vincennes. The landscape must be in the neighbourhood of Vincennes.——The death is announced, at the age of 85, of M. Ch. Auguste Alexandre Rabourdin, architect, and President of the Société des Architects d'Orleans.

A Nile Reservoir.—The Egyptian Government has signed a contract with Messrs. John Aird & Co. for the construction of barrages at Assouan and at Assiout, the work to be completed in five years, and payment to be made by instalments extending over thirty years, the first instalment to be payable after completion. A Nile reservoir will be thus constructed, and 19,031,065,000,000 cubic mètres of water will be stored.

Germany and Austria.—The *Zeitschrift für Architektur und Ingenieurwesen* contains an illustrated account of the magnificent bank recently erected by Messrs. Sommerschuh & Rumpel in Dresden.——The evangelical congregation at Bielitz, Silesia, are about to erect a bronze statue, with granite pedestal, to the memory of Luther; it is to cost about 8,000 florins.——During the past year 596 new buildings have been erected in Vienna.——A new sanatorium is to be erected in Gmunden from the designs of Herr M. Rosenauer, Municipal Architect.——The building of the law courts in Laybach is to commence this year.——A centre for the supply of electricity for motive purposes is to be erected in Prague at a cost of 2,600,000 florins.——A new parish, with church and clergy-house, is being formed in Pilsen, the existing church accommodation being too small for the growing size of the town.——Herr Hatschek, a Vienna architect, has been commissioned to prepare plans for a new casino and concert hall at Raab.——An exhibition of German industry, trade, and husbandry is to be held at Brüx, Bohemia; exhibits are arriving in great numbers.

MISCELLANEOUS.

Professional and Business Announcements.—Mr. T. Phillips Figgis is removing his offices, on March 1, from 5, Adelaide-place to 28, Martin's-lane, Cannon-street, E.C.——Mr. Owen W. Davis, architect, is changing his address on March 1, from 1, Caroline-street, Bedford-square, to 27, Rutland-street, Hampstead-road, London, N.W.

Appointment.—It is stated that Mr. William Henman, Birmingham, with his brother, Mr. C. Henman, of London, has been selected by the Metropolitan Asylums Board to prepare designs for a residential school for children suffering from ophthalmia.

Architectural Section, Glasgow Philosophical Society.—A meeting of the Architectural Section of the Philosophical Society of Glasgow was held, on the 14th inst., in the rooms, Bath-street. Mr. D. MacBain presided. Mr. A. Lindsay Miller, the hon. secretary, read a paper descriptive of a holiday tour in the North of England, in which he was accompanied by a number of the architectural students of the School of Art. Beginning at Carlisle, where the party spent several hours at the cathedral and other places of note in the city, the journey was continued to Naworth Castle, the seat of the Earl of Carlisle, the fine old hall and the apartments of "Belted Will" being visited. Lannercost Priory was next visited. At Hexham the party were received by Mr. Gibson, under whose guidance several objects and places of interest were examined. The Roman wall in the district was also examined. The lecture was illustrated by numerous views taken by Mr. Miller during the excursion.

Temperance Permanent Building Society.—In the report of the directors, presented to the general meeting of members of this Society on Wednesday, it was stated that the amount advanced during the year on mortgage of house property was 250,483*l.*, an increase of 10,134*l.* The amount secured on mortgage at the end of the year was 921,354*l.*, an increase of 64,083*l.* The total amount advanced on this class of securities since the formation of the Society has been 6,478,517*l.* The report goes on to say:—"There is a remarkable feature in connexion with the mortgage securities to which special prominence ought to be given. Of 3,471 securities held by the Society, no fewer than 3,176 are for sums not exceeding 500*l.*, or upwards of 1,300 more small properties than are held by any similar institution. This Society can therefore legitimately claim that it is carrying out, to a greater extent than any other building society in the United Kingdom, the object for which building societies were established, namely, to assist the industrious and provident classes to become owners of house property."

Manchester Ship Canal Company.—The half-yearly report of the company, to December 31, 1897, states that the gross receipts from the Ship Canal portion of the undertaking amounted to 107,333*l.*, and showed an increase of 6,217*l.* as compared with the corresponding period of 1896. The increase of net revenue was, however, 11,514*l.*, as the working expenses were smaller, although the weight of traffic handled was larger. The rate of progress in 1897 was not so great as during the two preceding years, but an increase of 190,821 tons of sea-going traffic was not discouraging having regard to the strength of the opposition encountered, and the fact that some of the recent developments had not yet had time to affect traffic receipts appreciably. The Engineer's report as to works states that the dredging required for the maintenance of the depth of water in the canal and docks has been carried on continuously during the last half-year. Since the closing of the tidal openings there has been a marked diminution of the dredging required in the tidal section, but, on the other hand, increased quantities of sewage sludge, and other detritus, have been brought down to, and deposited in, the canal and docks by the rivers Mersey, Irwell, &c. The transporter for the wharf at the Warrington Dock entrance has been delivered after a lengthened delay, and is now in course of erection. In the Manchester and Salford docks the extension of Trafford Wharf, and the additional floors in the three-story sheds, have been completed and are in use. The works in connexion with the grain elevator at Trafford Wharf, and its accessories, are well advanced, and are being pushed forward to completion. The foundations of a new large transit shed, on the jetty between Nos. 6 and 7 docks, have been commenced and are partly completed. Several extensions of the dock railways have been completed, and others are now in course of being executed. Many smaller works for the better equipment of the docks and sheds for traffic purposes have been carried out. The timber wharves and jetties constructed on the banks of the canal between Barton and Mode Wheel by the Anglo-Caucasian Co., Limited, the Liverpool Storage Co., Limited, Messrs. Bagnall & Co., Limited, and the Gas Committee of the Manchester Corporation, for the accommodation of the oil trade, have been completed and brought into operation. The superstructure of the Cold Air Stores on the north side of the canal at Weaste is being erected by the Colonial Consignment and Distributing Co., Limited, and the formation and construction of the lay-bye and jetties in connexion therewith are about to be undertaken. A wharf is in course of construction by the Manchester Patent Fuel Works, Limited, on the south bank of the canal above Barton Aqueduct, to enable patent fuel to be shipped for export. The slopes of the canal generally are in good condition.

Glasgow Cathedral.—On the 12th inst. the eighth of the winter course of art lectures was delivered in the Glasgow Corporation Art Galleries by Mr. T. L. Watson, his subject being Glasgow Cathedral. In introducing his subject, the lecturer referred to the influence upon the development of Gothic architecture exercised by the numerous and destructive fires which occurred in the large churches of the eleventh and twelfth centuries. In order to make their religious buildings enduring as well as beautiful, the whole energy of the designers was directed to the problems of covering them with stone vaulting, and this resulted in the evolution not only of the arch rib vault, but of the pointed style of architecture. The earliest building of importance at Glasgow, the church erected by Achaius in the early years of the twelfth century, was destroyed by fire

in 1176, and a parallel to this was found in Canterbury, where the choir of the Cathedral erected at the same time as the church of Achaius was burnt down in 1174. While we knew nothing about the destruction of the building at Glasgow beyond the date, a minute and picturesque description of the fire at Canterbury by an eye-witness, together with a valuable account of the operations which followed, had come down to us. From this Mr. Watson read several extracts. The rapidity with which the rebuilding of the choir at Canterbury had been carried out was contrasted with the prolonged operations under Bishops Jocelyn, Walter, and Bondington at Glasgow. Several features of the cathedral were then referred to, the choir and lower church being described in some detail and illustrated with a series of views. This part of the building, it was stated, was almost wholly of the thirteenth century, a period when there was no appreciable difference between the architecture of Scotland and that of England. We had thus the broad basis of English archæology to ground upon, and in contrast with other parts of the building and with many other buildings in Scotland, its architecture was particularly clear. The architecture was of five distinct dates, each separated from the others by an interval sufficient to mark the development of the style. This development was indicated by a change of general design and by the introduction of a new type of moulding in the vaulting ribs in each section, which formed a regular sequence and illustrated the development of vaulting during the thirteenth century. The lecturer afterwards dealt in some detail with the sequence and approximate dates of the various portions of the structure, and with the methods and machinery employed in erecting large buildings such as the Cathedral in the thirteenth century.—*Scotsman.*

FISH MARKET, WEST SMITHFIELD.—The Corporation have transferred, at a cost exceeding 20,000*l.*, the retail fish market to a new site in the middle of the flower and vegetable division at the north-west corner of the market area, and have there built another range of shops. The fruit, vegetable, and flower market—in lieu of Farringdon Market—was built by Messrs. Rudd & Son, of Grantham, and Messrs. Perry & Co., of London, after the designs of the late Alexander Peebles, City Architect, and opened on June 13, 1892. The fish market was first established May, 1883, in the building which had been erected for the sale of fruit and vegetables, and was subsequently opened, on December 11, 1889, for poultry and provisions, as the fish traffic therein had resulted in a heavy loss. Then, on November 7, 1888, was opened the second fish market, designed by the late Sir Horace Jones, and built by Mr. Mark Gentry. The Central Meat Market had been opened in 1869 by the late Alderman J. C. Lawrence, in the year of his mayoralty.

THE CALEDONIAN ASYLUM.—The Guardians of this charity have agreed to effect a sale for 13,370*l.* of the asylum buildings and site—1 a. 3 r. 35 p., with a frontage of 250 ft.—in Caledonian-road, Holloway.

HALL'S SANITARY WASHABLE DISTEMPER.—This is a new sanitary water-paint, which possesses several good features. It sets hard, and in a few weeks it is said that it can be washed with impunity. It contains a small percentage of the well-known antiseptic and germicide cresylic acid, so that its purifying effect is greatly enhanced. It contains neither lead nor caustic alkali, consequently it is safe and cleanly in working, and its covering power seems to be considerable, as it is claimed that 4 lbs. of distemper thinned with 1 lb. of water will cover over 25 square yards of surface. The thick material can be used for filling up cracks and holes in the surfaces to be covered, as it sets firmly and in time becomes fairly hard. It is also claimed that it will set even on a damp wall, and that it will not scale off. If necessary, oil paint or varnish can be applied without preliminary sizing. The ranges of tints in which it is supplied is fairly wide and pleasing. Of course, the tests of time and practical experience are the only ones that can be relied upon with preparations of this kind; but, so far as our examination of the claims put forward by the manufacturers goes, we think that we can safely recommend a trial of the preparation to all requiring a reliable water-paint. The manufacturers are Messrs. Sissons Brothers & Co., Limited, Hull.

MAP OF LONDON RAILWAY AND TRAMWAY SCHEMES.—Mr. Edward Stanford (Charing Cross) has issued a map which will be useful to those who are interested in the various Metropolitan railway and tramway schemes now before Parliament. The map shows, in three different markings, railways in existence, railways sanctioned, and railways proposed; and tramways are shown under the same three headings. By means of three colours, combined with the use of continuous and dotted lines, all these six orders of railway and tramway lines, existing or proposed, are clearly defined and can be easily followed on the map.

WOOD PAVEMENTS.—The Sheffield City Council have decided to pave the Moor, one of the principal thoroughfares, with wood in preference to granite. At the meeting of the Council, a letter was read from Mr. T. de Courcy Meade, City Surveyor of Manchester, who referred to the wood paving in Mosley-street, Manchester, where parts of the tramway would have to be taken up because of the expansion of the wood, which had gradually closed the tram rails. He referred to King-street, which was laid with wood in 1889, and had to be taken up, turned, and repaired in 1895; and Exchange-street, which was paved with wood in 1890, and repaired in 1896. He fixed the average life of wood (creosoted beech) at fifteen years, and the life of granite at thirty years. Beech was the most suitable timber for wood paving. Summing up the merits and demerits of granite and wood, Mr. de Courcy Meade said that, while wood was noiseless, granite was impervious, comparatively inexpensive, and exceedingly durable.

HULL MASTER BUILDERS' ASSOCIATION.—The annual dinner of the Hull Master Builders' Association was held on the 17th inst., at the Grosvenor Hotel, when the President (Mr. W. G. Bray) occupied the chair. The usual loyal and patriotic toasts having been duly honoured, Mr. T. Goates, proposed the toast of "The Mayor and Corporation." Alderman Larard and Councillor Richardson replied. Mr. P. Gaskell then gave "Success to the Hull Master Builders' Association." He said that but a few years ago that Association was comparatively little known, but now they numbered some 220 members.—The President congratulated the members upon the success of the Association. They had been very conciliatory towards the men when they asked for a rise in wages, and thus averted such a catastrophe to their trade as befel the engineers.—During the evening a secretaire was presented to Mr. T. Goates in recognition of his three years' presidency; a silver tea and coffee service was also given to Mrs. Goates. The presentation was made by the President, and Mr. Goates replied.

SELL'S DICTIONARY OF THE WORLD'S PRESS AND ANNUAL OF USEFUL KNOWLEDGE FOR 1898.—This useful publication, which gives particulars of every newspaper published throughout her Majesty's dominions, together with the principal foreign papers, has just been issued. The new issue contains much information which will be of use to commercial men, including a list of Treaties of Commerce and Navigation between Great Britain and Foreign Powers; new legislation concerning Trade and Commerce, Session of 1897; Canadian Tariff, 1897; United States Tariff, 1897; United States and Canadian Retaliatory Commercial Legislations; United States and the World's carrying trade; the Progress and Status of Australian Federation, &c. The new issue, with its more comprehensive title, has been enlarged, and, besides being a dictionary of the World's Press, it has assumed quite an encyclopædic character.

THE MUNICIPAL YEAR BOOK, 1898.—The new edition of this work has been issued by Messrs. Edward Lloyd, Limited, Salisbury-square, E.C. The aim of the compilers has been to describe the work carried out by municipal authorities in the country, and they have succeeded in producing a book containing a great deal of useful information relating to municipal bodies. Under the heading of each town a description is given of the main features of its government. The chief features of the municipal code as applicable to London, England, Scotland, and Ireland, are described. This year's issue has been extended to include an account of work carried on by the larger District Councils. The "Year Book" is also a directory, containing lists of all the town councillors throughout the country, and the officials employed by the various authorities.

LOCAL GOVERNMENT ANNUAL, 1898.—This is the seventh year of publication of this little work, which contains, in addition to other useful information, a synopsis of all the previous year's legislation affecting local government; summaries of the "chief legal decisions of the year," "the chief powers of the London County Council," "the chief powers of the London Local Authorities," and statistical information dealing with "public health," "London," "the Poor Law," and other matters which come within the scope of local government. The work is published at No. 2, Dorset-street, Fleet-street.

ROMAN FIND AT LINCOLN.—A discovery has just been made in excavating for the purpose of laying the foundations of two new villas in Wordsworth-street, Steep Hill, by the workmen of Mr. B. Fanthorpe, contractor, a piece of the original south wall of the city, about 30 ft. wide, being laid bare. It runs in a direct line from east to west, and experts who have seen it have no hesitation in stating it to be a part of the old south wall. An arch on the same level spanned the Steep Hill near the Leopard Inn. The wall is in a very sound condition.—*Lincolnshire Echo.*

THE CLAIM BY ABERDEEN BUILDERS.—At the meeting of the Aberdeen School Board on the 17th inst., the Administration Committee reported having received a letter from Messrs. Allan, Buckley Allan, & Milne, advocates, intimating that the contractors of the Westfield School had instructed them to obtain payment of their claims for breach of contract, and appending a statement of the same, the amount of which was found to aggregate 958*l.* 18s., payment being asked forthwith in view of past delay. The letter was held to be referable to the Litigation Committee. This Committee met at the close of the Board meeting. On reference to the minutes, the Committee found that the claims stated were greatly in excess of the sums which the contractors had formerly agreed to accept, and the Clerk was instructed to inform Messrs. Allan, Buckley, Allan, & Milne of that fact, and to say that meantime the Board would consider the question and communicate their decision in the course of a week. It is understood that, failing an early and satisfactory settlement of the claims, an action will be raised in the Court of Session. It may be added that the contractors agreed some time ago to accept certain sums if they were paid at once, but the Board did not pay these amounts at the time nor since, and accordingly the contractors consider that the provisional agreement was broken by the Board and not by them. The Board failed to implement the arrangement, more delay has occurred, and higher damages are consequently demanded.—*Aberdeen Journal.*

FEDERATION OF EMPLOYERS IN THE BUILDING TRADES.—A meeting was held at the Adelphi Hotel, Liverpool, on the 9th inst., when nearly all the leading building firms of Manchester, Liverpool, and districts were represented. Mr. Robert Neill, jun., J.P., was elected first President, and other officers and a strong executive board were duly appointed to carry out the scheme of district federations throughout the country. This was inaugurated at the meeting of the National Association of Master Builders of Great Britain, held in London at the Builders' Institute in January, when it was resolved that the whole of the building trades should be federated together to receive and consider the demands which the workmen are now making upon the masters in nearly every large centre of business operations. In consequence of what are considered the aggressive and unreasonable demands, notices of which have recently been received from the operatives by the employers in the building trades in the Manchester and Liverpool districts, the employers have felt compelled to federate for mutual protection. Similar organisations have already been started in Lancashire, Yorkshire, West and South of England, and the Midlands. These in due time are expected to become one huge federation of the building trades, presided over by the National Association of Master Builders of Great Britain, established over twenty years ago. By this arrangement a scheme will be arranged to embrace all local associations throughout the country, which will become affiliated with the federated areas. These in their turn will be presided over by the National Association of Master Builders. The object of this Employers' Federation is to form a powerful combination of employers to counteract the trades-unions, particularly in regard to interference with the management of works and freedom of employment.

APPOINTMENT OF SANITARY INSPECTORS.—The Local Government Board has sanctioned the appointment of the following persons as sanitary inspectors in the undermentioned districts:—Mr. A. Chuter in Battersea, Mr. R. J. Sheppard in Hackney, Mr. G. White in Hackney, Mr. G. Rackham in St. Pancras.

BOROUGH ENGINEER, SOUTH SHIELDS.—At the January meeting of the South Shields Town Council Mr. Matthew Hall, the Borough Engineer and Surveyor, tendered his resignation after holding that office for nearly thirty years. Mr. Hall was appointed in October, 1868. The population at that time was about 42,000 and the rateable value 90,000*l.*; the population is now 97,000 and the rateable value 318,000*l.* During the time he has held office he has carried out main drainage works, Corporation stables for fifty horses with houses for superintendent and horsekeeper, cartwright's shops, &c., twelve miles of tramways with stabling, &c., an infectious diseases hospital, three branch police buildings, &c. He also superintended the laying-out of the Marine Parks near the sea-side. Mr. Hall will enter into partnership with his son, who is already established in the town as an architect and surveyor. In consideration of his long service with the Corporation, the Council has appointed him for a term of seven years as "Consulting Borough Engineer" at a salary of 150*l.* a year.

PUBLIC IMPROVEMENTS, WOLVERHAMPTON.—A brief outline of the work done in the Wolverhampton Borough Surveyor's Department during the past year has been issued by Mr. Bradley. Public street improvements have been made in Wadham's-hill, Dudley-road, Cannock-road, and Green Lanes, Lord Barnard giving, in the last instance, some 671 super yards of land to the roadway. Plans and estimates have been prepared in respect of the Exchange Hall improvement. Many trees have been planted in the streets, and there is now a total of 664. New street name plates have been fixed in 100 streets, and the houses in fifteen streets have been numbered, 922 building plans have been reported on and approved, as compared with 383, 419, 536, 514, and 885 in the five preceding years. The total number of houses and shops approved is 651, and affording accommodation for over 3,000 persons. The floor space provided in the new workshops, warehouses, and factories amounts to 26,000 super yards. Plans have been prepared for new baths, at an estimated cost of 15,000*l.*, and it has been decided to proceed at once with the large swimming bath, 120 ft. by 52 ft., and borrowing powers have been obtained for the necessary expenditure.

GLASGOW BUILDING TRADES' EXCHANGE.—The members of the Glasgow Building Trades' Exchange held their first annual dinner on the 10th inst., in the Windsor Hotel, St. Vincent-street. Colonel Robert J. Bennett (President) occupied the chair. The loyal and patriotic toasts having been duly

honoured, Mr. James Goldie gave the toast of "The City of Glasgow," and Bailie Dick responded. Mr. Peter Lawrence then proposed the toast of the evening, "Glasgow Building Trades' Exchange." In doing so, he said that the first building exchange to be established in Scotland was that of Glasgow, and now similar institutions had been formed not only in Edinburgh but in other parts of the country. He hoped many more would be established, because they had a beneficial influence.—The Chairman, in replying, said he was very gratified to see such a large gathering at the first dinner of the Glasgow Building Trades' Exchange. It was a clear indication that the Exchange was a living factor in their midst, and he assured them that to those who had come through the worry and stress, to say nothing of the anxiety, of building up such an institution, it was particularly gratifying. The membership had increased rapidly, and at the present time there were 300 members with a prospect of a good and useful career before them. The Exchange had done great good to the building trades. If it did nothing more, it at least cemented friendships among its members. They were, however, working silently but surely in every matter in which they felt it was for the good of their trade that they should interfere. In these degenerate days, when prices were cut to the lowest point, and Corporations and co-operative societies were loud in the land, it was proper that such associations as theirs should be formed, so that all who honoured their trade should stand shoulder to shoulder, and guarantee good work, and ask a fair price for it. He trusted the day was not far distant when every city of importance in Scotland would follow in their footsteps, and have an exchange of their own.—Mr. John Laird gave "The Merchants' and Trades' Houses of Glasgow," and the Lord Dean of Guild and the Deacon Convenor replied. Other toasts followed.

POTTERY.—Mr. William Burton delivered his second lecture at the Manchester Art Gallery, on the 8th inst., on "Material and Design in Pottery." According to the *Manchester Courier*, he said that of the finer kinds of earthenware the Persian, Rhodian, and Turkish faïence and the Damascus wares had a siliceous "slip"—that is, a coating upon the body which before being fired could have certain pigments laid upon it at discretion. The Hispano-Moresque, Rouen, and Delft wares, as also Italian majolica, had an enamel or glaze in which oxide of tin played an important part. Here, again, the influence of material on design was apparent. The siliceous glaze could be coloured red or green by oxide of copper, blue by oxide of cobalt, and purple by oxide of manganese; while the tin enamel prohibited the development of purple and red, but admitted in their stead the fine orange and yellow colours for which certain Italian ware is celebrated. The Greeks, on the other hand, with all their genius for outline, had little command of colour, and their work was deficient in this respect. Even the Egyptians of 4,000 years ago were ahead of them, and the advance in colour production appeared to have spread from that country to Assyria and Persia, back again to Greece, and also, through the Moors, to Spain and Western Europe. Many examples of ornament were shown, either by actual specimens or lantern slides, to illustrate the influence upon it of the materials and processes at command. Nearly two centuries ago the Staffordshire potters discovered a means of compounding a mass which, when fired, was altogether white, and, in addition, more plastic than any that had been previously known. From this period dated the manufacture of plates, dishes, and the like, by machinery; these, though devoid of the individuality and decorative skill of articles made separately under personal effort, were yet more uniform and useful, and vastly cheaper. The influence of this discovery had dominated the pottery industry of the whole world, partly for good and partly for evil.

PRINCES' HALL, PICCADILLY.—The Princes' Hall Restaurant Company, having taken an under-lease of Rawling's Hotel, Jermyn-street, (Nos. 37-8), together with part of No. 36 in that street, are about to rebuild those premises as an addition to the restaurant in Piccadilly, opened by them (after conversion of the concert-hall and other parts of the hall) in May, 1896. For the new buildings plans have been made by Messrs. J. T. Wimperis & Arber—these include a "Masonic Temple," for banquets given by various metropolitan lodges, and the estimates for cost and furnishing amount to about 30,000*l.* Princes' Hall, where are now the Royal Institute of Painters in Water Colours and the Institute of Painters in Oil Colours, was built by Messrs. Peto Bros. after Mr. E. R. Robson's designs; the busts on the façade were by Mr. Onslow Ford. In the *Builder* of March 13, 1886, we published an illustration of the doorway, of which the two symbolical figures are by Mr. Verhevden, and the foliage, lettering, &c., by Mr. McCulloch.

CAPITAL AND LABOUR.

CARDIFF MASONS' STRIKE.—On the 11th inst., the Executive Committee of the West of England and South Wales Master Builders' Federation held a meeting at the Guildhall, Bristol, under the presidency of Mr. A. Krauss (Bristol), to consider the Cardiff masons' strike. Representations were made with reference to the dispute from Cardiff, Newport, Cheltenham, Gloucester, Bridgwater, Plymouth, Bath, and Weston-super-Mare, and the Chairman, having explained the object of the meeting, called on Mr. J. E. Turner, President of the Cardiff Master Builders' Association, to make a statement with regard to the origin of the strike. This Mr. Turner did, and eventually the President moved, and Mr. G. J. Long, President of the Bath Association, seconded, and Mr. F. N. Cowlin (Bristol) supported, the following resolution: "That the West of England and South Wales Master Builders' Federation having at a special meeting held this day heard and carefully considered the situation of the operative stonemasons' strike with the Cardiff Master Builders' Association, the Executive of this Federation concurs in the action of the Cardiff Association, and promises it its heartiest support." The resolution was carried.—At a meeting at Cardiff, held subsequently, the men decided to accept the modified conditions arranged with the masters, and work has since been resumed. The text of the new rules is as follows:—(1) That no worked stone for contract work be imported from other towns paying a lower rate of wages than that paid in Cardiff, excepting landers, rectangular, spandrel, and newel-ended steps; Yorkshire or Forest of Dean paving; and square, single or double chamfered copings, which may be procured from any locality. Wrought granite and marble, stone chimney pieces, and fender curbs are excepted from the restriction of this rule. (2) No restriction is to be placed upon the supply of dressed stone by any member of the C.M.B.A. to any other person, subject to the aforesaid conditions of this rule. (3) That no sub-letting by piecework labour will be allowed, and that no sub-contracting will be countenanced by either party. (4) Sub-contracting is to be deemed to mean the sub-letting of any portion of a contract involving the whole of the labour and material fixed and completely finished in its place in the building.

STATE OF EMPLOYMENT IN JANUARY.—Employment at the end of January was not so good as a year ago. Compared with a month ago the returns show some improvement, but it is to be remembered that the previous month's figures were somewhat affected by suspension of work at Christmas. The January returns apply to a period before the recent resumption of work in the engineering trade, and employment in the shipbuilding and kindred trades still shows the adverse effects of the stoppage. In the following figures persons directly on strike or locked out have been omitted, but the indirect effect of the stoppage is very marked. In the 116 trade unions making returns, with an aggregate membership of 461,544, 22,870 (or 4·96 per cent.) were reported as unemployed at the end of January, compared with 5·34 per cent. at the end of December, 1897, and with 3·3 per cent. in the 115 unions, with a membership of 454,342, from which returns were received for January, 1897. Employment in the building trades has improved and continues good. The percentage of unemployed union members was 2·0 at the end of January, compared with 2·4 at the end of January of last year.

LEGAL.

PENALTIES AGAINST A BUILDER.

MR. GEORGE E. BAINEY, builder, Forest Gate, was summoned on the 12th inst., at the Stratford police-court, by the East Ham Urban District Council for penalties in respect of non-compliance with an order made by the Court. In October last defendant was summoned and fined 5*l.* for failing to remedy certain sanitary defects at 46, Rutland-road, East Ham, a house owned by him. An order was also made to do the work with a continuing penalty of 10s. a day till it was done. But the defendant did not do the work, and the Council thereupon stepped in and remedied the defects at a cost of 1*l.* 8s. 10d. The work was completed on January 14. Mr. W. B. Whittingham (the Chairman) said it would be useless for the bench to make orders of this sort unless they were enforced. The previous order of the Court would now be adhered to, and defendant would have to pay 10s. a day from the date of the order till the date of the completion of the work, viz., sixty-seven days. Defendant must also pay 1*l.* 8s. 10d., the cost of the work done by the Council, and 10s. 6d. Court costs—amounting in all to 35*l.* 9s. 4d.—*Morning Post.*

MEETINGS.

FRIDAY, FEBRUARY 25.

Architectural Association.—Mr. F. W. Troup on "Leadwork, Plain and Decorative" (with practical demonstrations). 7.30 p.m.

Royal Institution.—Captain Abney on "The Scientific Principles of Modern Colour Photography." 9 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. C. E. Wolff on "The Problem of Train Resistance." 8 p.m.

SATURDAY, FEBRUARY 26.

Builders' Foremen and Clerks of Works' Institution.—Annual Dinner, King's Hall, Holborn Restaurant. 6 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Aylesbury Dairy Company's premises, Bayswater. 3 p.m.

MONDAY, FEBRUARY 28.

Carpenters' Hall, London-wall (Free Lectures on Matters connected with Building).—Professor T. Roger Smith on "Some Notable Buildings in France," with lantern illustrations. 8 p.m.

London Institution.—The Rev. Canon Benham on "St. Paul's Cathedral." 5 p.m.

Society of Arts (Cantor Lectures).—Mr. Hugh Stannus on "The Principles of Design in Form." III. 8 p.m.

Institution of Junior Engineers.—Visit to the Westinghouse Brake Company's Works, York-road, King's Cross. 3 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—8 p.m.

TUESDAY, MARCH 1.

Institution of Civil Engineers.—Papers to be further discussed:—(1) "The Theory, Design, and Practical Working of Alternate-Current Motors," by Mr. Llewelyn B. Atkinson. (2) "Dublin Electric Tramway," by Mr. H. F. Parshall. 8 p.m.

WEDNESDAY, MARCH 2.

Royal Archæological Institute of Great Britain and Ireland.—(1) Viscount Dillon, President, on "Tilting in Tudor Times." (2) Mr. A. F. Leach, F.S.A, on "The Origin of Sherborne School, Dorset." 4 p.m.

British Archæological Association.—Mr. T. Cato Worsfold on "The French Stonehenge." Limelight views by Mr. A. E. Brown. 8 p.m.

Society of Arts.—8 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection in the Parish of St. George's, Hanover-square. 2 p.m.

Northern Architectural Association.—Mr. Chas. T. Marshall on "The new illuminant Acetyleine Gas, with special reference to the lighting of buildings by the same; with illustrations.

Perth Architectural Association.—Mr. Andrew Wilson on "Gasworks Construction." 8 p.m.

Edinburgh Architectural Society.—Mr. A. Hunter Crawford on "A Combined System of Steam Heating and Cooking and Domestic Hot-water Supply." Illustrated by a working model. 8 p.m.

THURSDAY, MARCH 3.

Society of Antiquaries.—Ballot for the election of Fellows. 8.30 p.m.

Royal Institution.—Professor J. A. Fleming on "Recent Researches in Magnetism and Diamagnetism." 3 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. A. Wynter Blyth on "Sanitary Laws and Regulations Governing the Metropolis." 8 p.m.

Institution of Civil Engineers.—Students' visit to the works of Messrs. John I. Thornycroft & Co., Chiswick. 2.30 p.m.

Society for the Encouragement of the Fine Arts.—Mr. W. Law Bros on "Primitive Ireland." Limelight illustrations. 8 p.m.

FRIDAY, MARCH 4.

Royal Institution.—Professor T. E. Thorpe on "Recent Results of Physico-Chemical Inquiry." 9 p.m.

SATURDAY, MARCH 5.

Perth Architectural Association.—Visit to the Free Library. 2.30 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Sewage Works, Kingston-on-Thames. 3 p.m.

British Institute of Certified Carpenters (Carpenters' Hall).—Mr. C. T. Aston on "Shoring." 6 p.m.

RECENT PATENTS:

ABSTRACTS OF ACCEPTED SPECIFICATIONS.

Open to opposition until April 2.

[1897.] 2,034.—A WORKMAN'S BOTTLE: *A. Stephenson.*—For cleaning its inside the bottle has its tapered (upper) portion fixed by a hinge, opening by means of a spring-bolt and hasp.

2,195.—PAVING-BRICKS OR TILES: *Stuart & Robertson.*—To keep the brick or tile under pressure during the setting of its material a mould or die is devised with removable bottom, with a follower or press-plate, and swivelling retaining pawls at the upper part of the die or moulding box.

2,415.—CHIMNEY TOPS: *Ottens & Elsenbusch.*—This is fitted with oscillating flaps, suspended before openings on each side of the top, bent at their upper ends, and lying on their edges to easily turn in the ends of the borders of the cover, which are bent in the opposite direction.

2,755.—HOT-WATER SUPPLY TO RESTAURANTS, LAVATORIES, &c.: *F. Lamplough.*—The apparatus comprises a connected boiler and container, main gas-burners for heating water, bye-pass gas-burners to maintain the water's due temperature, water-pressure regulators, and gas-regulating appliances; an automatically operated valve, and valve to permit escape of steam, ratchet wheel on axes of delivery valve, and a stop-pawl to prevent rotation of the valve until the water has reached the desired temperature are also covered by the invention.

2,840.—WINDOWS AND DOORS: *D. Keith.*—For casement windows whose lower and upper casement frames or sashes swivel out from one side hinges are fixed upon their opposite sides, so that the sash-frame can slide up and down and swivel within the room; for doors, a recess in the top lintel affords space for the sliding up-and-down action on the hinges and counter-weight chain, whilst a corresponding recess below the floor level admits of ventilation through an open space at top of the door.

3,489.—APPARATUS FOR TEACHING MODEL DRAWING: *I. Tomlinson.*—A square, oblong, or circular skeleton frame is fitted to and slides upon another frame containing a sliding sight-hole; this can be fixed by a bolt to a desk or easel, and focussed in direction of the model; by means of fine wire or string across the skeleton frame, and held by clip springs or threaded through holes, the figure can be delineated.

4,572.—FIRE-ESCAPES AND THEIR CARRIAGES: *L. de L. Wells (of the M.F.B.).*—For the conveyance of fire-escapes on vehicles provided with shafts for travelling on their own wheels; the escape can be readily hauled up on anti-friction wheels or rollers supporting its axle into that position in which its axle will be over one of the axles of the carriage; also the arrangement on the folding levers of the escape of two sets of drums for adjusting, with ropes or lines, the positions of the ladders, and the fitting the ladders with side-bars having ribs or webs projecting at the inner sides of their upper edges.

6,324.—MANUFACTURE OF WHITE LEAD: *T. C. Sanderson.*—A precipitated white lead of high density is produced by adding successive quantities of carbonic acid

to a basic lead salt solution in presence of the successive precipitates accumulated from prior precipitations; the process is applicable also to other soluble salts of lead which are capable of being precipitated by carbonic acid.

6,413.—CONCRETE PAVING AND THE LIKE: *D. & J. Burness.*—An anti-slipping material is obtained by forming holes or recesses in the concrete or stone surface, having internal screw-threads into which are screwed plugs of hardened india-rubber or similar resilient material; when the plug becomes worn a half-turn will raise it above the surface again.

7,157.—BRICKS, TILES, AND OTHER CLAY GOODS: *W. H. Keys.*—These are coloured by applying chloride of iron, or sulphate of iron (in form of refuse pickling solution resulting from the common practice of pickling iron or steel prior to galvanisation), with brushing or immersion of the article before burning it, so that, in the process of burning, the hydrochloric or the sulphuric acids are liberated, leaving the iron on the brick or tile's surface.

21,811.—WORKING OF RAM BLOCKS FOR PILE-DRIVING, &c.: *W. Drühl.*—The block, automatically raised and released, has an axle, at the back of an opening, which carries an arm extending within the chain's path, and held by hooked rails pressed together by springs. The rails, when separated by a spring wedge—driven between them by a stop-rail—release the arm, and allow the ram-block to fall: the other arm of the disc drives a bar out of the bottom part of the block, which, when the blow is struck, turns the disc in the opposite direction, and so puts the block again in gear with the chain.

26,386.—A DISTANCE-MEASURING INSTRUMENT: *J. T. Brown.*—The instrument comprises an angle whose arms extend at 90 deg.; the device comprises a long (*a*) and a short (*b*) arm set parallelwise, and rigidly connected by a cross arm (*c*) set at 90 deg., and forming the base of a triangle used for calculating the distance. A swing-arm or pointer forms the hypothenuse of a right-angled triangle whose two other sides are formed by *a* and *c*; the pointer is pivoted at the intersection of *b* and *c*, and a graduated double arc reaches from the outer end of *b* to the intersection of *a* and *c*. For operation, the instrument is placed on a table, *a* is pointed to the object, and the pointer is then adjusted: the graduation marked by the pointer on the upper arc determines the distance.

27,777.—APPARATUS FOR CHIMNEY SWEEPING: *W. H. Kennedy.*—A length of strong resilient material has a core of cane, either split or of tubular shape. Round this strong wire is wound, and then cased with rubber sheathing. The length thus made can be wound upon a drum or reel carried on a table, with legs to form bearings, and a handle to turn the drum or reel; at the rope's other end a sweeping brush is fixed.

27,860.—SEWER AND OTHER MANHOLES: *H. E. Stilgoe.*—To avoid the necessity of pumping, the invert or bottom is made in one piece or more for connexion to the adjoining sewer-pipes, so as to form a water-tight chamber, extending upwards to above the subsoil water level. After the pipes have been laid the parts can be lowered into position. The subsoil water will flow away through the sewer-pipes and through the invert or bottom (unless constructed at the top end of a sewer or with no inlet), and the pipes and invert can then be rapidly bolted up or the parts made.

30,535.—CIRCULAR SPIRIT-LEVEL: *W. Taylor.*—The outer case has an inwardly projecting lip, against which bears the outer edge of the glass; against the inner edge of the glass is a ring of caoutchouc or similar packing; a closing plug fits tightly in the case; its edge has an outer bevel, so that when forced into the case it forms at the angle where the glass and case meet a triangular space, into which packing may be squeezed, and where the plug's inner edge protects it from contact with the fluid charge.

NEW APPLICATIONS.

For week ending February 12.

3,016, Fletcher and Others, Gas and Oil Condensing Stoves. 3,017, H. Childs, and 3,055, G. T. Siddle, Brush and other Handles. 3,031, P. L. Whitehouse, a Pigment or Paint Material. 3,046, H. Moore, 3,126, A. H. Craven, 3,186, H. W. Hartman, and 3,382, A. O. Neville, Castors. 3,063, H. Leidenfrost, for Raising Doors upon their Hinges. 3,068, R. Miles, Water or Wind Motors. 3,077, G. W. Sutton, 3,332, A. Pilkington, 3,338, J. Davies, and 3,432, J. Legge, Pipes and Tubes. 3,083, A. Clark, Folding Gates, Shutters, &c. 3,086, H. Borchardt, Automatic Gas Lighting. 3,093, Greer & Babington, for Raising Water from Wells. 3,107, H. S. Paige, for emptying Water Pipes. 3,111, E. Wilkinson, Screwdrivers. 3,113, W. R. Omohundro, Brick and Tile Making. 3,116, W. Killen, and 3,370, E. H. West, Refrigerating Apparatus. 3,119, A. E. Line, Spring Bolt Shackle. 3,123, J. M. Andersen, Electric Switches. 3,143, J. Fielding, Riveting Machines. 3,145, J. Labat-Guilmant, Rulers for Geometrical and other Drawing. 3,150, G. W. Westgarth, 3,180, E. Savage, 3,287, Robinson & Head, 3,462, J. Somerville, 3,467, C. Tweedale, and 3,544, A. R. Turner, Window-sash Fastenings. 3,156, R. Strathy, Wire Fences. 3,158, C. E. Daniel, Keys and Locks. 3,162, W. A. Guthrie, Automatic Fire Alarms. 3,166, A. H. Lawrence, Bases or Mouldings of Fenders, and Fender Kerbs, Fronts, &c. 3,176, J. Russell, Radiators. 3,179, R. L. Hattersley, Ratchet Brace and Portable Drills. 3,198, C. L. Saunders, Electric Carbons. 3,203, H. J. Harding, for Preparing and Treating Lime. 3,204, Vigreux & Brillié, and 3,563, F. Brown, Electric Arc Lamps. 3,206, C. Herbert, Tube and Socket Jointing, &c. 3,212, B. H. Thompson, Drain and Similar Pipes. 3,213, J. M. Dodge, Moving Stairways, Elevators, and Platforms. 3,219, A. C. Heap, Electrical Measuring Instruments. 3,237, Duckett & Son and Others, Water-closets and their Appurtenances. 3,239, J. Murray, a Water Screen for Prevention of, and Protection from, Fire. 3,246, J. Barrow, Grindstones. 3,248, H. Ashley, Pumping Apparatus. 3,249, Thompsons, a Brazeless Joint. 3,263, Taylor & Ashworth, Chimney Pots. 3,266, W. Parry, Self-Adjusting T-square. 3,267, W. Carter, a Friction-brake for Cranes, Crabs, Hoists, &c. 3,274, J. H. Ogilvie, Heating and Ventilating. 3,280, Taylor & Hollick, Cement and other Mills. 3,293, H. Silley, Propelling and Raising or Extending Ladders, Fire-Escapes, Platforms, Scaffolds, Stagings, Lift-Compartments, Crow's-nest Look-outs, &c. 3,296, C. V. Burton, Tinning and Soldering Aluminium. 3,313, P. Iserloth, Electro-motors. 3,349, G. Evans, Combined Spirit Level, Rule, and Square. 3,352, E. Robbins, and 3,421, H. Callow, Window Sashes and Frames. 3,362, J. E. Weyman, Water Heaters and Fuel Economisers. 3,372, Kotin & Tayler, Apparatus for Public Recreation. 3,376, W. Wright, Building-blocks, Bricks, &c. 3,380, Sweet & Lindsey, Window and Door Fastener. 3,405, H. H. Bridgman, Jointing Drain and other Pipes. 3,408, W. Cooper, for Thawing Frozen Ground and Preventing Freezing of same. 3,412, Lawson & Dallas, Combined Fuse and Switch Box. 3,419, J. Jones, Waste-pipes. 3,455, Clarke & Warburton, Turbines. 3,464, R. Briggs, a Ventilator. 3,469, Hodge & Porter, Manholes and Removable Covers. 3,475, W. Osment, Making Longitudinal Joints in Wood Panels, &c. 3,478, D. Roche, Cranes, &c. 3,480, Smiths, and 3,490, Bradshaw & Fell, Windows. 3,488, K. Thomann, Roofing Tiles. 3,495, J. S. Raworth, Electric Motors. 3,499, E. G. Hoffmann, Pulley and other Clutches. 3,507, Evershed & Vignoles and Another, Electric Meters. 3,521, Ollier & Brown, Cutters for Square Moulding and similar Wood-working Machines, and 3,522, for Moulding Balusters, &c. 3,525, Sims & Others, Syphon-flushing Cisterns and Tanks, &c. 3,539, Rigby & Taylor, for Automatically Opening and Closing the Doors of Hoists, Lifts, &c. 3,582, G. Bischof, Churning White Lead and Oil. 3,591, Day & Lavigne, Turret Lathes. 3,592, E. Stokes, Gouge or Scribing Tool. 3,595, E. Liebert, Screw Wrenches or Spanners.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

January 28.—By JONES, LANG, & CO.

Hastings.—8, Trinity-st., u.t. 50½ yrs., g.r. 12*l.*, r. 85*l.* £1,100

By R. W. SCOBELL.

Croydon.—161, London-rd., f., r. 30*l.* 830

By G. GOULDSMITH, SON, & CO.

Belgravia.—3, Wilton-st., u.t. 20 yrs., g.r. nil, r. 200*l.* 2,000

Lee.—1, Belgrave-ter., u.t. 59½ yrs., g.r. 8*l.*, r. 35*l.* 230

By THORNE & SON.

Ilford.—40, Belmont-rd., u.t. 995 yrs., g.r. 6*l.*, e.r. 32*l.* 360

By T. B. WESTACOTT.

Holloway.—36, George's-rd., f., r. 35*l.* 580

23, Benmell-rd., u.t. 65¾ yrs., g.r. 8*l.*, r. 40*l.* 445

Highbury.—135, Highbury Hill, u.t. 79 yrs., g.r. 6*l.*, r. 43*l.* 485

January 29.—By FOX & VERGETTE (at Peterborough).

Eye, Northants.—A brickyard, with house, farm premises, &c., area 10 a. 0 r. 8 p., f. and c., together with plant, machinery, &c. 1,100

January 31.—By MATTHEW MILES.

Westgate-on-Sea, Kent.—"The Nottingham Castle Hotel," f., r. 140*l.* 4,040

Piccadilly.—6, Half Moon-st., u.t. 20 yrs., r. 210*l.*, with furniture, fixtures, &c. 540

February 1.—By DEBENHAM, TEWSON, & CO.

Southwark—43, Borough High-st., f., r. 300*l.* ... 5,950

By J. F. STONEHEWER.

Tottenham.—3 to 10, Tebworth-rd., f. 1,580

Tebworth-rd., f.g.r. 4*l.*, reversion in 92 yrs., with reversion to other property in 68½ yrs. ... 180

15, 16, 23, and 24, Nursery-st., f. 780

15 and 16, Staines-rd., u.t. 89 yrs., g.r. 6*l.* 220

By HEPPER & SONS (at Leeds).

Bramley, Yorks.—"Hough End Mills" and 1¼ a., f., with motive power and fixed machinery 4,340

Hough End, "The Hawthorns," "Ferncliffe," nine cottages, and 1 a. 3 r. 33 p., f. 2,000

Hough End, a freehold mill and 17 a. 2 r. 5 p., with motive power and fixed machinery 1,570

By TABERNACLE & SON (at "Masons' Hall Tavern").

Horselydown.—Artillery-st., "The Dundee Arms" p.-h., a re-building lease for 81 yrs. from Midsummer, 1904, g.r. 150*l.* 9,525

Parish-st., "The Black Eagle Tap," a lease for 21 yrs., Midsummer, 1898, r. 75*l.* 500

By ORGILL, MARKS, & ORGILL (at Masons' Hall Tavern).

Forest Gate.—St. James'-rd., "The Morning Star," off-licensed premises, f., r. 36*l.* 2,100

88 to 96 (even), St. James'-rd., f., r. 132*l.* 12s. 1,420

Fulham.—Estcourt-rd., "The Estcourt Arms," off-licensed premises, f., r. 46*l.* 3,260

February 2.—By RUSHWORTH & STEVENS.

Westminster.—Broadway, "The Hoop and Grapes" p.-h., f., r. 100*l.* 8,560

By FURBER, PRICE, & FURBER.

Kensington.—132, 134, 136, and 138, Sinclair-rd., u.t. 81 yrs., g.r. 60*l.* 1,800

By HAROLD GRIFFIN.

Battersea.—40 and 48, Granfield-st., u.t. 68 yrs., g.r. 8*l.* 10s. 460

By ALFRED RICHARDS (at Tottenham).

Edmonton.—83 to 97 (odd), Upper Fore-st., area 15,000 ft., f., r. 122*l.* 2,330

Tottenham.—The Green, a freehold residence, r. 20*l.* 640

The Green, a freehold plot of land 320

186 and 188, Northumberland-pk., f., e.r. 50*l.* 565

28, The Avenue, u.t. 81 yrs., g.r. 5*l.* 5s., e.r. 27*l.* 300

By CATLING & SON (at Cambridge).

Cambridge.—62, Sidney-st., f. 5,000

42, Tenison-rd., u.t. 79½ yrs., g.r. 2*l.* 12s. 5d., r. 25*l.* 425

Histon, Cambs.—"The Gables," f., r. 50*l.* 650

Four enclosures of land, 31 a. 1 r. 1 p., f. 1,625

The Infant School Room, with residence, f., r. 13*l.* 400

A freehold building and 0 a. 3 r. 22 p., r. 4*l.* 130

A freehold house, with workshop, &c., and a plot of land 380

A freehold enclosure, 12 a. 2 r. 24 p. 330

Cottenham, Cambs.—Two freehold allotments, 27 a. 1,260

The Manor of Pelhams, with all rights, fines, &c., 1,750

Long Sutton, Lincs.—The Manor of Sutton Cranwell, with all rights, fines, &c. 490

Cambridge.—12, Trumpington-st., u.t. 891 yrs., g.r. 10s. 950

By HORNBY & CRANSWICK (at Driffield).

Foston, Yorks.—"Cruckley Farm," 109 a. 3 r. 24 p., f., r. 142*l.* 10s. 4,450

By A. DOWELL (at Edinburgh).

Orkney Islands.—"The Estate of Melsetter," area about 40,971 a., e.r. 2,340*l.* 32,000

By THORNBORROW & CO. (at Troutbeck).

Mungrisdale, Cumberland.—"The Lane Head Estate," 152 a. 2 r. 34 p., f. and c. 2,125

"The Haskew Rigg Estate," 69 a. 3 r. 10 p., c.. 1,910

February 3.—By ALFRED SQUIRE.

Hampstead-rd.—217, Seymour-st., u.t. 45 yrs., g.r. 11*l.*, r. 60*l.* 395

February 4.—By F. PITTIS & SON (at Ventnor).

Niton, Isle of Wight.—"The Royal Sandrock Hotel," f. £1,800

February 8.—By E. H. HENRY.

Clapham Common.—13, Crescent-grove, f., r. 60*l.* 830

By FLEURET, SONS, & ADAMS (at Masons' Hall Tavern).

West Ham.—Vicarage-lane, "The Canteen Tavern," with two houses adjoining, f., r. 125*l.* 18s. 6,590

February 9.—By F. J. BISLEY & SONS.

Old Kent-rd.—124, Trafalgar-rd., u.t. 74½ yrs., g.r. 7*l.* 7s. 295

Hatcham.—6 and 8, Drakefell-rd., u.t. 66 yrs., g.r. 12*l.* 12s., r. 70*l.* 700

By TOWERS, ELLIS, & CO.

Bayswater.—14, Kildare-ter., u.t. 53 yrs., g.r. 7*l.* ... 630

12, Westmoreland-rd., u.t. 49 yrs., g.r. 10*l.* 10s., r. 60*l.* 450

By DOUGLAS YOUNG & CO.

Brixton.—72, Loughborough Park, with nursery grounds in the rear, area about 3 a., u.t. 24¾ yrs., g.r. 16*l.* 700

Battersea.—26, St. John's-rd., beneficial lease for 11½ yrs., r. 85*l.* 240

28, 30, and 32, St. John's-rd., a beneficial building lease, area 5,356 ft., u.t. 11 yrs., r. 300*l.*, with insurance compensation of 1,600*l.* .. 510

Bow.—132, Malmesbury-rd., u.t. 50 yrs., g.r. 4*l.*, r. 30*l.* 350

February 10.—By C. C. & T. MOORE.

Victoria Park.—21, 22, and 23, Robinson-rd., u.t. 56 yrs., g.r. 15s., r. 79*l.* 16s. 1,005

Mile End.—125, 127, and 129, Duckett-st., f., r. 71*l.* 10s. 725

Poplar.—36, Rook-st., f., r. 20*l.* 16s. 165

101, East India-rd., f., e.r. 55*l.* 700

Stratford.—45, 46, 47, and 48, Maryland-st., u.t. 67 yrs., g.r. 10*l.* 515

Haverstock Hill.—11, Maitland Park-rd., u.t. 54 yrs., g.r. 5*l.*, r. 42*l.* 400

By HIGGINS & SON.

St. John's Wood.—22, Elm Tree-rd., u.t. 19½ yrs., g r. 10*l.* 10s., e.r. 100*l.* 760

By SLADE & BUTLER.

Leytonstone.—28, Forest-drive, f., e.r. 45*l.* 620

By STIMSON & SONS.

Hampstead.—6 and 8, St. Cuthbert's-rd., u.t. 93½ yrs., g.r. 20*l.*, r. 195*l.* 2,000

Acton.—3 and 4, The Parade, u.t. 84 yrs., g.r. 16*l.*, r. 60*l.* 660

Chelsea.—58, 60, 62, and 64, Uverdale-rd., u.t. 80½ yrs., g.r. 20*l.* 12s. 1,200

Clapham.—26, 29, and 31, Sandmere-rd., u.t. 82 yrs., g.r. 22*l.* 17s. 6d., r. 121*l.* 1,075

Peckham.—43 and 45, St. Mary's-rd., f., r. 76*l.* .. 1,110

1 to 8, Wellington-rd., f., r. 281*l.* 3,935

Clapham.—50 and 52, Clapham-rd., f., r. 100*l.* 1,920

Kennington.—40, 41, 42, and 43, Gilbert-rd., u.t. 29½ yrs., g.r. for first 19½ yrs. 16*l.*, and for remainder, 24*l.* 1,120

Vauxhall.—Glasshouse-st., &c., f.g.r. 400*l.*, reversion in 79½ yrs. 11,000

132, 132a, and 134, Tyers-st., and 14, 15, and 16, Laud-st., f. 1,510

Peckham.—43, Reedham-st., u.t. 79 yrs., g.r. 7*l.* 10s., r. 30*l.* 325

By WHITFIELD & SON (at Llanarmon).

Llansilin, Denbigh.—"Cahir Farm," 166 a., f. 1,525

By G. E. SWORDER & SONS (at Bishop's Stortford).

Much Hadham, Herts.—"Green Tye Farm," 56 a. 0 r. 33 p., c. 600

By HEPPER & SONS (at Morley).

Morley, Yorks.—Ackroyd-st., &c., "The Commercial-st. Mill Estate," area 1,543 yds., f., with motive power, machinery, plant, &c. 2,750

February 11.—By ARBER, RUTTER, & WAGHORN.

Marylebone.—47, Wigmore-st., u.t. 6 yrs., g.r. 51*l.* r. 305*l.* 1,450

By COOPER & GOULDING.

Gunnersbury.—26, Arlington Park-gardens North, u.t. 79 yrs., g.r. 9*l.* 9s., e.r. 45*l.* 370

29 and 32, Brandenburgh-rd., f., r. 120*l.* 2,445

Chiswick.—26, Elliott-rd., f., r. 32*l.* 10s. 455

By G. A. WILKINSON & SON.

Holborn.—Verulam-st., f.g.r. 70*l.*, reversion in 76 yrs. 2,260

By A. J. SHEFFIELD.

Poplar.—177, High-st., f. 280

7, Rigden-st., f. 215

128, Kerbey-st., f. 375

Bromley.—11 to 31 (odd), Fawe-st., u.t. 77 yrs., g.r. 35*l.* 15s. 1,350

Canning Town.—2 to 24 (even), Greenville-st., u.t. 990 yrs., g.r. 63*l.* 1,995

Millwall.—67 and 69, West Ferry-rd., u.t. 20 yrs., g.r. 6*l.*, r. 58*l.* 600

By W. DEW & SON (at Llandudno).

Llandudno, Carnarvon.—St. George's-st., "The St. George's Hall," with gallery and shop, u.t. 70 yrs., perpetually renewable, g.r. 5*l.* 7,000

Trinity-sq., "Lyndhurst" boarding house, u.t. 79 yrs., g.r. 9*l.* 10s., r. 95*l.* (subject to mortgage of 1,300*l.*) 440

7, Craig-y-Don Parade, u.t. 46 yrs., perpetually renewable, g.r. 6*l.* 7s. 6d. 950

February 14.—By BUCKLAND & SONS.

Bloomsbury.—8, Silver-st., u.t. 27 yrs., g.r. 12*l.*, r. 50*l.* 425

By F. DOD & CO.

Canonbury.—35, Halton-rd., u.t. 20 yrs., g.r. 6*l.*, r. 36*l.* 215

De Beauvoir Town.—53, Southgate-rd., u.t. 18 yrs. g.r. 6s., r. 50*l.* 360

By WRIFORD & DIXONS.

Finsbury Park.—148 and 150, Fonthill-rd., f., e.r. 72*l.* 835

Balham.—42, Ramsden-rd., f., r. 38*l.* 585

February 15.—By DEBENHAM, TEWSON & CO.

Drury-lane.—No. 180, area 1,560 ft., f., r. 230*l.* 4s. 3,050

Chiswick.—Hartington-rd., "The Spencer Park Estate," 3 a. 0 r. 27 p., f. 2,500

City of London.—Moor-lane, &c., f.g.r., 170*l.* reversion in 74 yrs. 5,650

Moor-lane, f.g.r. 180*l.*, reversion in 77 yrs. 5,150

Strand.—11 and 12 Vere-st., f., r. 163*l.* 3s. 1,260

By JOSEPH STOWER.

Wandsworth.—30, 32 and 36, Bucharest-rd., u.t. 91 yrs., g.r. 16*l.* 10s. 520

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Public Baths	Winchester Corp.	25*l*. First and 15*l*. Second	Mar. 31
*Police Station, Court House, &c.	Warrington T.C.	100*l*. 50*l*. and 25*l*.	July 2

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Road Metal, Arbroath, N.B.	Forfar C.C.	F. Minto, Road Surv. 1, Hillend-rd. Arbroath	Mar. 1
Surveyor's Materials	Colchester U.D.C.	H. Goodyear, C.E. Stanwell-street, Colchester	do.
Sewer	Halifax R.D.U.	F. Gordon, Engr. Clifton, Brighouse	do.
*Pulling Down County School, Charminster		Crickmay & Sons, 77, St. Thomas-st. Weymouth	do.
Additions, &c. to School, Deiniolen, Carnarvon	Llandeiniolen Sch. Bd.	R. L. Jones, Archt. 14, Market-st. Carnarvon	do.
Three Houses, Long Preston, near Settle		T. Peel, Rathwell, Settle	do.
Church, Sandylanes, Heysham, near Morecambe		Austin & Paley, Archt. Lancaster	do.
Mortuary, &c.	Radcliffe (Lancs) U.D.C.	Surveyor, Council's Offices	do.
Post Office Buildings, Douglas, Isle of Man	H.M. Office of Works	Secretary, 12, Whitehall-place, London, S.W.	do.
Post Office, Newry, Ireland	Office of Public Works, Dublin	H. Williams, The Offices, Dublin	do.
Well and Heading Engine, Pump House, Dwellings, &c.	Desborough U.D.C.	J. B. Everard, 6, Millstone-lane, Leicester	do.
Cottage, Golden-grove, Whitby	J. Turnbull	R. Lennard & Son, Archt. Cliff-street, Whitby	do.
Road Works, Back Cecil-street	Wallsend U.D.C.	G. Hollings, Surv. Council's Offices, Heugh-st. Wallsend	do.
Road Maintenance, &c.	Sevenoaks R.D.C.	Surveyor, Council's Offices, Sevenoaks	do.
*Works and Materials	Fulham Vestry	W. J. H. Denselow, Town Hall, Walham Green, S.W.	Mar. 2
*Road Making and Paving Works in Fennard-road	Hammersmith Vestry	H. Mair, C.E. Town Hall, Hammersmith	do
*Sewer Pipes and Main Drainage Works	Watford U.D.C.	Engineer, 14, High-street, Watford	do.
*Works and Materials	Esher & Thames Ditton U.D.C.	A. J. Henderson, A.M.I.C.E. Council Offices, Thames Ditton	do.
Galvanised Iron Buildings, Horton Bank, Top and Bottom	Bradford Corp.	City Surv. Town Hall	do.
Painting (Large Contract), Newcastle and Tynemouth	N.E. Rly. Co.	C.A Harrison, Engr. Central Station, Newcastle-on-Tyne	do.
Stable, &c. at Workhouse	Bandon (Ireland) Union	A. Haynes, Workhouse, Bandon	do.
Twelve Cottages	Bandon Union	R. Evans, C.E. 53, Southmall, Cork	do.
Additions to Workhouse	Balrothery (Ireland) Union	Scott & Son, Archt. 16, William-st. Drogheda	do.
Fire Station and Quarters, Lauriston	Edinburgh Corp.	R. Morham, City-chmbrs Edinburgh	do.
Water Mains	Littlehampton U.D.C.	Surveyor, Town Offices	do.
Bricks, Flags, &c.	Brighouse (Yorks.) T.C	E. Brooke, Boro. Surv. Public Offices	do.
Alterations to Glebe House, Kendal	Rev. Canon Trench	J. Stalker, Archt. Kendal	do.
Road Metal	Gainsborough R.D.C.	R. Maxwell, Surv. North Marsh-road, Gainsborough	do.
Road Metal, New Monkland, &c Hamilton, N.B.		A. Rankin, Road Surv. Airdrie	do.
Sewer, Clarence-road, Grays	Kent & Essex Land, &c. Co.	G. W. Cobham, Surv. 49, Windmill-st. Gravesend	do.
Pipe Sewers (2 miles)	King's Lynn Corp.	E. J. Silcock, C.E. Boro Engr. Town Hall	do.
*New Wing, Pier Head, and Refreshment and Waiting Rooms	Southend-on-Sea Corp.	A. Fidler, Boro. Engr.	do.
Pipe Sewer, &c. North Marsh-road	Gainsborough U.D.C.	H. Riley, Engr. Council's Offices	Mar. 3
Additions to Premises, Moat-road	Walsall Union	H. E. Lavender, Archt. Bridge-st. Walsall	do.
Police Station, West Worthing		R. S. Hyde, Archt. Erlswell-road, Worthing	do.
Harbour Extension, Scrabster, Caithness	Harbour Trustees	J. Barron, C.E. 156, Union-street, Aberdeen	do.
Twenty Houses, near Gellyfaelog Farm, Penydarren, Merthyr	Aweifryn Building Club	J. Williams, Archt. Morgantown, Merthyr Tyddil	do.
Two Houses, Hove Edge, Brighouse, Yorks		E. C. Brooke, Archt. 6, Huddersfield-rd. Brighouse	do.
Villa, Greenroyd Estate, Skircoat, Halifax		G. Buckley & Son, Archts. Tower-chmbrs. Halifax	Mar. 4
Road Materials	Kent C.C.	F. W. Ruck, Surv. Week-street, Maidstone	do.
Fifteen Houses	Stalybridge Indus. Co-op. Soc. Ltd.	Sec. Soc. Offices, Grosvenor-street, Stalybridge	do.
Residence, Usk, Mon.		Lanadowne & Griggs, Archt Metropolitan Bank-chmbrs, Newport, Mon.	do.
Welsh Granite, Setts, &c.	Castleton (Lancs.) U.D.C.	R. J. Webster, Surv. Council's Offices	do.
*Offices, &c. Leicester; Stabling, Bingley; Painting at Morecambe; &c. &c. &c.	Midland Rly. Co.	Co.'s Archt. Cavendish House, Derby	do.
*Works and Materials	Bath U.S.A.	City Surv.'s Office	Mar. 5
Church, Colton, near Bolton Percy		C. H. Fowler, Archt. The College, Durham	do.
Fittings, &c. Grammar School, Ashby-de-la-Zouch, Lincs.	The Governors	G. H. Lilley, Ashby-de-la-Zouch	do.
Nurses Home, Pembroke Dock, South Wales		H. A. Jones-Lloyd, 33, Bush-st. Pembroke Dock	do.
Six Cottages, Cobden-st. Wollaston	W. Tibbetts	E. W. Margetts, Archt Rockholm, The Heath, Stourbridge	do.
Shed, &c. at Workhouse, Fairmile	Christchurch (Hants) Union	A. Druitt, Union Offices, Christchurch	do.
Additions to Asylum, Mullingar, Ireland		H. Williams, Lunacy Offices, Custom House, Dublin	do.
Additions to Infirmary, Oxford	Committee	W. H. Castle, Surv. Town Hall	do.
*Painting Works at Public Library	Bermondsey Vestry	F. Sumner, Surv. Town Hall	do
Sewerage Works, Pembrey-road	Llanelly U.D.C.	G. Watkeys, C.E. Town Surv. Council Offices	Mar. 7
*Additions to Workhouse	Whitechapel Union	B. J. Capell, 70, Whitechapel-road, E.	do.
*Designs, Tenders, &c. for Bandstand	Barking Town U.D.C.	C. J. Dawson, East-street, Barking	Mar. 8
Station, Pershore, Worcs.	G.W. Rly. Co.	G. K. Mills, Sec. Paddington Station, W.	do.
Cottage, Notgrove Station, Glos.	do.	do.	do.
Main Road Works, Maidstone	Kent C.C.	F. W. Ruck, County Surv. Maidstone	do.
Drainage Works, Strathaven, N.B.	Lanark C.C.	Crouch & Hogg, C.E. 175, Hope-street, Glasgow	do.
Gasholder Tank	Exeter Gas Co	W. A. Padfield, Engr. Gasworks, Exeter	do.
Condensers, Dawsholm Gasworks	Glasgow Corp.	Engineer, 45, John-street, Glasgow	do.
*Roadmaking and Paving Works	Lewisham B. of W.	Surveyor, Town Hall, Catford	do.
Road Materials	Pontefract R.D.C.	W. A. Glover, Union Offices, Pontefract	Mar. 10
Parcels Offices and Subways, Sheffield	Great Central Rly. Co.	O. S. Holt, London-road Station, Manchester	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered
Completion of Church, Stabannon, co Louth	Rev. P. Fentory	W. H. Byrne, Archt. 20, Suffolk-street, Dublin	Mar. 10
Water Supply Works, Church Aston	Newport (Salop) R.D.C.	W. Wyatt, Archt. Bryndwr, All Saints', Shrewsbury	do.
Technical Institute, Norwich		A. E. Collins, City Engr. Guildhall, Norwich	Mar. 12
Villa, Skircoat Green-road, Halifax		G. Buckley & Son, Archts. Tower-chmbrs. Halifax	do.
*Stoneware Pipe Sewers, Manholes, &c	Broadstairs and St. Peter's U.D.C.	H. Law & Son, 17, Victoria-street, S.W.	do.
*Pumping Machinery, &c.	Hornsey U.D.C.	E. J. Lovegrove, C.E. Council Offices, Southwood-lane, Highgate, N.	do.
*Works and Materials			
Road Maintenance, &c.	St. Thomas (Devon) R.D.C.	J. Bray, Surv. Alphington, Devon	Mar. 14
Superstructure of Asylum, Chadwell Heath, Ilford	West Ham T.C.	L. Angell, Archt. Town Hall, Stratford, E.	do.
Additions to Workhouse, West Hill	Dartford Union	G. H. Tait, C.E. Lowfield-street, Dartford	do.
Retaining Walls, Fencing, &c. High Bank, Ore	Hastings Corp.	P. H. Palmer, C.E. Town Hall	do.
Surface Water Drainage, Bohemia road	do.	do.	do.
*Erection of Superstructure of Asylum with Offices, &c.	County Boro West Ham	L. Angell, Town Hall, Stratford, E.	do.
Three Stone Bridges, Bewcastle, Cumberland	Longtown R.D.C.	J. Murray, Dist. Surv. Alstonby, Carlisle	Mar.
Alterations, &c. to Schools, Wherstead-road	Ipswich Sch. Bd.	T. W. Cotman, Archt. Northgate-st. Ipswich	do.
Water Supply Works, at Asylum, Morpeth	Northumberland C.C.	D. Barfoue & Son, Engrs. 3, St. Nicholas-buildgs. Newcastle-on-Tyne	do.
*Superstructure of Fire Station	London County Council	Archt.'s Dept. 13, Spring-gardens, S.W.	do.
*Board Room and Offices	Edmonton Union	T. E. Knightley, 106, Cannon-street, E.C.	do.
Granite Setts, Flags, &c.	St. Helen's (Lancs.) Corp.	G. J. C. Broom, C.E. Boro. Engr. Town Hall	Mar. 16
Pipe Sewers	Burnley R.D.C.	S. Edmondson, Surv. 18, Nicholas-street, Burnley	Mar. 17
*New Schools, North Weald, Essex	Mile End Guardians	C. F. Burden, Guardians' Offices, Bancroft-road, E.	do.
Reformatory Buildings, Whipton near Exeter		E. H. Harbottle, Archt. County-chmbrs. Exeter	do.
*Brick Chimney Shaft	St. Pancras Vestry	Electricity Dept. 57, Pratt-street, N.W.	do.
*New Road, at Talgarth, Brecon	Brecon and Radnor Joint Asylum	Giles, Gough, & Trollope, 28, Craven-st. Charing Cross	Mar. 19
*Infirmary Wards and Buildings, at Workhouse	Ecclesall Bierlow Union	J. D. Webster, 19, St. James's-street, Sheffield	Mar. 21
*Block of Buildings	Brighton Guardians	H. S. Reed, Archt. Prince's street, Brighton	Mar. 22
Railway, Letterkenny to Burtonport, co. Donegal		J. Y. F. Cooke, C.E. St. Columb's, Londonderry	Mar. 24
Granite and Slag	Newark R.D.C.	T. Vickers, C.E. Lincoln-street, Newark	Mar. 25
*New Infirmary Buildings	Windsor Union	Edgington & Summerbell, Archt. Windsor	April 2
Granite Road Metal, nr. Northampton	Far Cotton U.D.C.	J. Ingman, Surv. Abington-street, Northampton	No date
New Roads (two miles) Handsworth, Staffs.	Far Croft Estate Co. Ltd.	W. Roberts, Surv. 37, Waterloo-st. Birmingham	do.
Granite Road Metal	Kingsthorpe (Northants) U.D.C.	J. Ingman, Surv. Abington-street, Northampton	do.
*Steam Mains, Valves, Pumps, &c.	W. Riding C.C.	County Surveyor's Office, Wakefield	do.
Additions, &c. "Culley's" Hotel, Barry Dock, Glam	S. A. Brain & Co.	Gethin & Co. Archts. Westgate-street, Cardiff	do.
Alterations to Business Premises Grimsby		Mr. Ross, 297, Cleethorpe-road, Grimsby	do.
Stable shed, &c. Holdsworth Hall, nr Halifax		J. Ackroyd, Estate Agent, Keighley	do.
Schools (Friars), Bangor, North Wales		Douglas & Minshull, Archt. 6, Abbey-square, Chester	do.
Five Houses, Low Baildon, Yorks.		F. Moore, Archt. 40, Sunbridge-road, Bradford	do.
Two Houses, Newcastle, co. Down	R. Thornton	J. Russell, C.E. 16, Waring-street, Belfast	do.
Alterations, &c. to Shop Premises, Highgate, Kendal	Greenwood & Littlewood	J. Hutton, Archt. Kendal	do.
Water Supply, High Green Manor, Bellingham, Northumberland		A. Smith, High Green, Bellingham	do.
Residence, Gosforth, Newcastle		W. Lister Newcombe, Archt. 89, Pilgrim-street, Newcastle-on-Tyne	do.
Enlargement of "Trevelyan" Hotel, Boar-lane, Leeds	Sir J. Barran, Bart.	W. C. Hall, Archt. Prudential Buildings, Park-row, Leeds	do.
Two Houses, Halifax-road, Brighouse, Yorks.		H. A. Whiteley, Archt. 15, Larkhill, Haigh-street, Brighouse	do.
Three Houses, Baker-street, Burnley		J. Mitchell, 13, Baker-st. Burnley	do.
Church, Gwynfe, nr. Llangadock, Carmarthen		E. H. Bruton, Archt. 15, Queen-street, Cardiff	do.
Stores, Keighley-rd. Skipton, Yorks.	Skipton Indus. Co-op. Soc.	Barber, Hopkinson & Co. Archts. Craven Bank-chambers, Keighley	do.
Two Houses, Herne Bay		J. Huxtable, Archt. 30, Bismarck-road, Highgate, N.	do.
Convent Buildings, Clones, Ireland		Canon O'Neill, P.P. Clones	
Church and Schools, Morpeth		G. Reavell, jun. Archt. Alnwick	do.
Retaining Walls, &c. Skewen, nr. Neath	Glamorgan C.C.	W. E. R. Allen, County Offices, Westgate-street, Cardiff	do.
Club Premises, Epsom	Conservative Club Committee	S. W. Ledger, Archt. 8, Philpot-lane, E.C.	do.
Alterations, &c. to Premises, Chapel-street, Exmouth	W. H. Penwarden	Kerley & Ellis, Archt. Exmouth	do.
Business Premises, Rolle-street, Exmouth	Hubber & Son	Kerley & Ellis, Archt. Exmouth	do.
Alterations, North Tavern, Leeds		C. D. Swale, Archt. 98, Albion street, Leeds	do.
Houses, Old-road, Llanelly		J. Davies & Sons, Archt. Cowell House, Llanelly	do.
Shop, Fountain-road, Hull		E. Snowden, 53, Grange-street, Hull	do.
School, Insch, N.B.		G. Sutherland, Archt. 115, Union-street, Aberdeen	do.
Business Premises, Queen-street, &c. Ramsgate	Gwyn & Co.	W. J. Jennings, Archt. 4, St. Margaret's-street, Canterbury	do.
Thirty-one Houses, Otley, Leeds		Fairbank & Wall, Archt. 3, Manor-square, Otley	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in.
*Surveyor	St. Martin's-in-the Fields Vestry	300*l*. rising to 400*l*. per annum	Mar. 7
*Inspector of Nuisances	Wimbledon U.D.C.	160*l*. rising to 250*l*. per ann.	do.

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p. iv.* *Contracts, pp. iv. vi. & viii.* *Public Appointments, pp. xix & xxi.*

Brixton.—20, Crastor-rd., u.t. 78 yrs., g.r. 7*l.* 10s. r. 36*l.* £285
Fulham.—1 to 29, Grove-avenue, u.t. 65 yrs., r.g. 75*l.* 1,750
Kilburn.—7, Abbey-lane and "Fern-cottage," u.t. 20½ yrs., g.r. 11*l.* 245
1 to 7, Providence-pl., u.t. 31 yrs., g.r. 10*l.* 600
8 and 9, Providence-pl., u.t. 15 yrs., g.r. 1*l.* 1s. ... 155

By ARTHUR BARTON.

Finsbury.—18, Finsbury-sq., beneficial lease for 12 yrs., r. 170*l.* 300
Anerley.—Anerley-vale, f.g.r. 4*l.* 12s., reversion in 53 yrs. 160

By GREEN & SON (of Hammersmith).

Chiswick.—St. Mary's-grove, f.g.r.'s 58*l.*, reversion in 93 yrs. 1,650
Twickenham.—Beaconsfield-rd., f.g.r.'s 45*l.*, reversion in 87 yrs. 1,255
Caledonian-rd.—Muriel-st., &c., f.g.r. 168*l.* 15s., reversion in 23½ yrs. 8,600
South Lambeth.—346 and 348, South Lambeth-rd., u.t. 41 yrs., g.r. 18*l.*, r. 145*l.* 1,500

By ROBINS, SNELL, & GORE.

Soho.—22, Denmark-st., f., r. 213*l.* 17s. 2,300
3, Richmond-bldgs., f., r. 100*l.* 1,950

By W. G. SHADRAKE.

Stockwell.—92, Hargwyne-st., u.t. 76 yrs., g.r. 5*l.* 10s., r. 26*l.* 285

By BRODIE, TIMBS, & CO.

Highgate.—68, 70, 72, and 74, High-st., f., r. 222*l.* 10s. 3,950
44, High-st., f., r. 40*l.* 610
44, 76, and 78, North-hill, f., r. 101*l.* 1,460
37, North-rd., f., r. 28*l.* 570
Muswell Hill.—Fortis Green-rd., 1 and 2, Gilburt's-cottages, also "Chestnut-cottage," and a cottage adjoining, f. 1,075
Sunbury-on-Thames. — French-st., "Holmsley Lodge," f. 450

By W. ROLFE (at Masons' Hall Tavern).

Newington Causeway.—"The Alfred's Head" p.-h., u.t. 55 yrs., r. 300*l.*, with goodwill 50,000

By BELTON & SONS (at Masons' Hall Tavern).

Islington.—Camden-st., "The Camden Head" p.-h., u.t. 18½ yrs., r. 100*l.*, with goodwill 12,010

By HEPPER & SONS (at Leeds).

Headingley, Yorks.—3 and 5, Ashwood-villas, f... 1,650
Leeds, Yorks.—6 and 8, Meadow-rd.; 3, 4, and 5, Tabernacle-st.; and 5, Mill-st.-pl., f., r. 87*l.* 2s. 1,100

February 16.—By DANIEL SMITH, SON, & OAKLEY.

Worplesdon, Surrey.—"Hurst Farm," 70a. 0r. 26 p., f. 3,100
"Watt's Farm," 55a. 0r. 22 p., f. 1,525
An enclosure of land, 4a. 1r. 34 p., f. 245

By BERTRAM & HARRIS.

Feltham, Middlesex.—2, Grove-villas, f. 255

By GEORGE BRINSLEY.

Sutton, Surrey.—Carshalton-rd., a plot of building land, f. 300
West-st., a plot of building land, f. 120

By H. E. FOSTER & CRANFIELD.

Kensington.—6, Shaftesbury-villas, u.t. 56½ yrs., g.r. 8*l.* 8s. 750
Kilburn.—Park-mews, f.g.r. 12*l.* 12s., reversion in 61 yrs. 350
Stoke Newington.—60, Fairholt-rd., u.t. 81 yrs., g.r. 8*l.*, r. 45*l.* 590

By ROGERS, CHAPMAN, & THOMAS.

Westminster.—31 and 33, Catherine-st., f., r. 56*l.* 950

By J. H. HIBBARD.

Pimlico.—27, 29, 30, 31, and 32, Eccleston-pl., u.t. 13 yrs., g.r. 18*l.* 7s. 6d., r. 130*l.* 720
Chelsea.—18 to 22, Lawrence-st., u.t. 40 yrs., g.r. 19*l.* 1,280

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	8/0/0 — 0/0/0
Teak, E.I.	load	12/0/0 — 15/.0
Sequoia, U.S. ft.cu.		1/8 — 1/10
Ash, Canada, load		3/0/0 — 4/5/0
Birch, do.		2/15/0 — 4/7/6
Elm, do.		3/15/0 — 4/15/0
Fir, Dantsic, &c..		3/9/0 — 3/9/0
Oak, do.		2/10/0 — 3/10/0
Canada		3/15/0 — 5/0/0
Pine, Canada red		c/0/0 — c/0/0
Do. yellow		2/2/6 — 4/2/6
Lath. Dantsic, fath		4/10/0 — 5/10/0
St. Petersburg..		5/0/0 — 6/10/0
Wainscot, Riga, &c., log		3/5/0 — 5/0/0
Odessa, crown		3/5/0 — 5/0/0
Deals, Finland 2nd & 1st std 100		7/10/0 — 8/0/0
Do. 4th & 3rd		7/10/0 — 8/0/0
Do. Riga		6/0/0 — 7/0/0
St. Petersburg, 1st yellow		9/10/0 — 12/0/0
Do. 2nd yellow.		8/10/0 — 10/0/0
Do. white		8/0/0 — 10/0/0
Swedish		8/10/0 — 15/0/0
White Sea		9/0/0 — 15/10/0
Canada, Pine 1st		19/5/0 — 25/5/0
Do. do. 2nd		13/15/0 — 16/5/0
Do. do. 3rd, &c.		6/5/0 — 9/15/0
Do. Spruce, 1st		9/15/0 — 12/5/0
Do. do. 3rd and 2nd		7/5/0 — 8/5/0
New Brunswick		6/15/0 — 7/5/0
Battens all kinds		5/0/0 — 18/0/0
Do. all kinds sq., 1 in. prep. 1st		0/9/0 — 0/16/6
Do. 2nd		c/7/6 — c/13/0
Other qualities		c/6/0 — c/7/0
Cedar, Cuba, ft.		/4 — /4½
Honduras, &c.		/3½ — /4½
Mahogany, Cuba		/5 — /6½
St. Domingo, cargo av.		/4½ — 0/1/3
Mexican, do. do.		/3½ — /4
Tobasco, do. do.		/4 — /4½
Honduras, do.		/4½ — /6
Box, Turkey, ton		4/0/0 — 15/0/0
Rose, Rio		7/0/0 — 14/0/0
Bahia		6/0 0 — 12/0/0
Satin, St. Doming.		0/0/5 — c/1/0

TIMBER *(continued)*.		
Satin, Porto Rico	0/0/6	c/1/6
Walnut, Italian	0/-/3	c/0/7
METALS.		
Iron—Pig, in Scotland ..... ton	2/6/1	c/0/0
Bar, Welsh, in London	5/15/0	5/17/6
Do. do. at works in Wales	5/10/0	5/12/6
Do. Staffordshire, in London.....	6/5/0	7/10/0
COPPER—British cake and ingot	52/15/0	53/5/0
Best selected ..	53/15/0	54/5/0
Sheets, strong..	59/ /0	0/ /0
Chili bars	49/5/0	c/0/0
YELLOW MTL lb.		4½d. 5d.
LEAD—Pig Spanish ....ton	12/10/0	0/0/0
English com. bands	12/15/0	0/c/0
Sheet, English 6 lbs. per sq. ft. and upwards ..	13/15/0	c/0/0
Pipe.....	14/5/0	0/0/0
ZINC—English sheet.....ton	20/5/0	e/c/0
Vieille Montagne	21/10/0	0/0/0
Spelter	18/1/3	18/3/9
TIN—Straits	64/0/0	0/0/0
Australian.....	64/10/0	65/0/0
English Ingots..	66/10/0	67/10/0
Banca	61/0/0	0/0/0
Billiton	59/15/0	60/.0
OILS.		
Linseed .....ton	16/5/0	0/0/0
Cocoanut, Cochin	27/15/0	c/0/0
Do. Ceylon.....	22/0/0	c/0/0
Palm, Lagos	21/15/0	0/0/0
Rapeseed, English pale	27/10/0	0/0/0
Do. Brown	26/0/0	c/c/0
Cottonseed ref....	14/5/0	15/5/0
Oleine.....	13/10/0	14/10/0
Lubricating U.S.	c/5/3	0/7/6
Do. Black	0/5/0	0/6/6
TAR—Stockholm barrel	1/0/0	0/0/0
Archangel	0/12/6	0/ /0
Turpentine 24/10/0		0/c/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

ABERDEEN.—For the erection of warehouse, Millbank, Berryden-road, for the Northern Co-operative Company, Limited. Mr. R. G. Wilson, architect, 181A, Union-street, Aberdeen:—

Masonry—Leslie Smith
Carpentry—Alex. Halls
Slating.—Alex. Adam & Co.
Plumbing.—Thom & Strachan
Plastering.—George Leith
Painting.—John Williamson
} Total. £7,753 13s.

[All of Aberdeen.]

ASHTON-UNDER-LYNE.—For paving, flagging, &c., Pole-street, and others. Mr. J. T. Earnshaw, C.E., Town Hall, Ashton:—

R. C. Fish, Ashton-under-Lyne* ..... } Per schedule
J. W. Brierley, Ashton-under-Lyne ..... } List of
Wm. Neal, Ashton-under-Lyne ..... } Prices.

* Accepted.

BECKENHAM.—For the supply of Guernsey granite (1,000 cubic yards), for the Urban District Council. Mr. J. A. Angell, Surveyor, Council's Offices, Beckenham:—

Guernsey Granite.

	Per Cubic Yard. s. d.
W. Griffiths	18 0
A. F. Manuelle	17 8
Fry Bros	17 5
Mowlem & Co., Westminster (accepted)	17 5
L. Sommerfeld	17 3

Quartzite.

L. Sommerfeld	14 0
Kent Road Co.	13 10
Cherbourg Quartzite Co., Mark-lane (accepted)	12 11

BOSTON SPA.—For alterations to shop premises, &c. Messrs. T. A. Buttery & S. B. Birds, architects, Queen-street, Morley:—

G. W. Hunter, Boston Spa £163 10

BOURNEMOUTH.—For making up Campbell, Heath Farm, Richmond Park, and Shaftesbury roads, Bournemouth. Mr. F. W. Lacey, Borough Engineer and Surveyor:—

George Troke.....£1,784 2 10 | W. H Saunders & Co. (accepted)....£1,657 5 4
Grounds & Newton 1,668 11 4 |

BOURNEMOUTH.—For making up Churchill and Westbourne Park roads, Bournemouth. Mr. F. W. Lacy, Borough Engineer and Surveyor:—

George Troke.....£588 0 8 | W. H. Saunders & Co. (accepted).....£535 10
Grounds & Newton .. 538 10 10 |

BOURNEMOUTH.—For wrought-iron fencing and gates for Horse Shoe Site, Bournemouth. Mr. F. W. Lacey, Borough Engineer and Surveyor:—

F. Morton & Co., Limited .....£209 11 5 | Hill & Smith..... £176 4 0
Dorset Iron Foundry Company ..... 181 18 6 | Bayliss, Jones, & Bayliss 175 19 0
Taylor & Gardiner* .. 175 11 0

* Accepted.

BRISTOL.—For the erection of additions to the "Pack Horse Hotel," Lawrence Hill, for the Bristol United Breweries Company, Limited. Messrs. Gingell & Bond, architects, 51, Corn-street, Bristol:—

Eastabrook & Sons .....£977 | E. Love.....£845
E. Walters ..... 920 | W. Cowlin & Sons 844
J. Perkins..... 886 | E. Clark* 813
G. Humphreys ..... 875 |

* Accepted subject to the omission of pitch pine seating.

ENFIELD.—For the erection of six houses at Little Park, Enfield. Mr. John B. Thorp, architect:—

E. & W. Newman..... £5,450 | E. Houghton & Son £5,247
L. & W. H. Patman..... 5 4.0 |

EXMOUTH.—For additions to No. 15, The Parade, Exmouth, for Mr. J. Pulsford. Mr. R. M. Challice, architect, 9, Bedford-circus, Exeter. Quantities by architect:—

Westcott, Austin & White .....£1,390 0 | J. J. Lacey.....£1,246 0
A. Hayman, Exmouth* 1,049 18

* Accepted.

FRINTON-ON-SEA (Essex).—For the erection of a school for 150 children, for the School Board. Mr. Samuel T. T. James, architect, Frinton. Quantities by Messrs. Kemp, Welch, & Thomas, Bournemouth:—

McKay .....£1,795 | E. West £1,500
Balham & Co. ..... 1,775 | J. Shillitoe & Son 1,490
Myall & Ellis ..... 1,763 | T. B. Pitcher 1,450
H. W. Gladwell ..... 1,574 | H. J. Linzell, Clacton, Newmarket, and Frinton* 1,447
T. Canham ..... 1,558 |
J. W. Dixon..... 1,537 |

* Accepted subject to the consent of the Education Department.

GRAVESEND.—For the erection of (1) market buildings, and (2) fire-engine station, mortuary, &c., for the Town Council. Mr. Edmund J. Bennett, architect, 24, Darnley-road, Gravesend. Quantities by Mr. W. Hawker:—

	Market. —	Fire-engine station. —	
Thomas & Edge			£3,914
Rayfield	£2,708	£995	3,703
Gorse.....	2,564	1,015	3,589
Martin	2 554	998	3,542
Tuffer	2,552	925	3,477
Multon & Wallis, Gravesend*	2,499	899	3,398

* Accepted.

GRAYS (Essex).—For the erection of two houses, Clarence-road, for Mr. Paxman. Mr. Christopher M. Shiner, architect:—

H. J. Carter.....£558 | J. Lawrence £532
J. Brown ..... 558 | H. R. Rons 465

GRAYS (Essex).—For the execution of hot-water work to Bridge-road Schools, for Gray's School Board. Mr. Christopher M. Shiner, architect:—

P. N. Haydon & Sons.....£312 | Benham & Son £265
W. Shrivell ..... 290 |

GRAYS (Essex).—For alterations at the Grove, for Mr. E. W. Brooks. Mr. Christopher M. Shiner, architect:—

H. R. Rons .....£569 10 | J. Brown £540 16
J. Lawrence ..... 550 0 |

HANLEY.—For the erection of a warehouse at Lichfield-street Pottery. Mr. W. A. Baynes, architect, Shakespeare-buildings, Piccadilly, Hanley. Quantities by the architect:—

A. Ogden .....£1,550 | Haynes & Brock £695
T. Chatfield ..... 850 | Cornes & Sons 685

HANLEY.—For the erection of Pottes's Oven at Lichfield-street Pottery. Mr. W. A. Baynes, architect, Hanley:—

H. Lunt.....£256 | Haynes & Brock £230
C. Cornes & Sons..... 235 |

HALIFAX.—Accepted for the erection of business premises, Fenton-road, King Cross, for Mr. E. L. Dutton. Mr. T. L. Patchett, architect, George Street-chambers, Halifax:—

Excavating, Masonry, and Bricklaying.
B. Riley, Lewis-street, Halifax £1,349 10 0

Carpentry and Joinery.
J. Dyson & Son, King Cross, Halifax..... 526 0 0

Ironfoundry.
J. Berry, New Bank Foundry, Halifax 553 0 0

Plumbing and Glazing.
J. Naylor, Cheapside, Halifax..... 98 0 0

Slating and Plastering.
J. Bancroft & Son, Winding-road, Halifax 247 15 5

£2,765 5 5

HARROGATE.—Accepted for the execution of road works, Weymouth-road, &c., for the Corporation. Mr. S. Stead, Borough Surveyor, Town Hall, Harrogate:—

Weymouth-road.
Henry Leedham, Little Wonder, Harrogate ... £154 3 9

Roker-road.
Henry Leedham, Little Wonder, Harrogate 221 10 8

Back Road at Rear of Roker-road.
Henry Leedham, Little Wonder, Harrogate 147 19 8

HULL.—Accepted for additions to shop near Hessle-road. Mr. E. Whitlock, architect, 26, Scale-lane, Hull:—

Bricklaying and Plastering.—Whincop, Dee-street, Hull £203 0 0
Carpentry.—Whincop, Dee-street, Hull 117 0 0
Plumbing.—Smith, Hessle-road, Hull 32 3 2
Masonry.—Drewery..... 5 15 0
Slating.—Smith & Hunter, Ocean-place, Hull.... 28 17 3
Painting.—Dewick, Cromwell-terrace, Hull 7 17 0

Total £394 12 5

ILKLEY.—Accepted for the erection of steam laundry buildings, for the Sanitary Steam Laundry Company, Limited. Messrs. Baxendall & Critchley, architects, The Grove, Ilkley:—

Masonry.—Taylor & Watkins, Ilkley.....
Masonry & Joinery.—C. Murgatroyd & Sons, Idle, near Leeds .....
Ironfoundry—Taylor & Parsons, Bradford.....
Slating.—R. Nelson, Ilkley.....
Plastering.—R. Richardson, Ilkley.....
Painting.—J. G. Boden, Ilkley .....
Plumbing.—H. Garside, Ilkley .....
} £5,043.

LLANELLY.—For the erection of three villas, New-road, Llanelly, for Mr. J. Morris, Llanelly. Mr. W. Griffiths, architect, Falcon-chambers, Llanelly:—

T. & J. Brown .....£1,980 | W. Clement..... £1,784
J. Evans ..... 1,818 | B. Howell & Sons, Ltd. .. 1,772
G. Mercer ..... 1,800 | Hopkins & Clement* ....

[All of Llanelly.]

* Accepted.

LLANELLY.—For alterations to "Brynawel," Llanelly, for Mr. J. Wesley Jones. Mr. W. Griffiths, architect, Llanelly:—

J. Evans ..... £520 | B. Howell & Son £287
T. & J. Brown ..... 499 | G. Mercer* 315
T. Hughes ..... 408 |

[All of Llanelly.]

* Accepted.

LONDON.—For the erection of a new refreshment house at Tooting Common, for the London County Council:—

Thomas & Edge ....£430 0 0 | W. H. Lorden & Son £330 0 0
Marchant & Hirst .. 359 0 0 | J. Ham & Son..... 329 15 2
R. H. Galbraith .... 335 15 0 | G. McArthur & Co. .. 323 19 6
General Builders, Ltd. 330 0 0 | J. Garrett & Son* 319 0 0

* Accepted.

LONDON.—For pulling down and rebuilding "The Brewery Tap," Kent House-lane, Sydenham, for Messrs. J. Campbell, Johnstone & Co., Ltd. Mr. J. H. Richardson, architect, 37, Finsbury-pavement, E.C.:—

		Deduct if with Monk's Park stone.
Reynolds	£2,347	£26 0
Wimpkin	2,165	25 0
Courtney & Fairburn	1,998	24 0
Kilbey & Gayford	1,974	25 0
Beer & Gash	1,957	25 0
Ransome	1,957	21 16
Richards	1,925	52 0
Bendon (accepted)	1,887	32 0

LONDON.—For works of painting and repair at Blackheath, Dulwich Park, and Ladywell Recreation-ground, for the London County Council:—

Blackheath.

C. G. Jones .....£159 15 3 | Vigor & Co. £86 5 0
W. Dudley ..... 157 6 6 | J. J. Richards 79 15 5
T. Lapthorne & Co.. 139 18 11 | A. Hudson..... 73 5 4
O. W. Graves ..... 123 1 0 | R. Harding & Son 72 13 0
W. Ashcroft ..... 90 1 6 | Marchant & Hirst 72 12 0
E. Proctor..... 88 0 0 | A. H. Inns* 50 0 0

Dulwich Park.

W. Dudley .....£597 12 0 | J. Ham & Son.....£297 0 0
C. G. Jones ..... 495 1 10 | H. Bragg & Sons 292 7 4
R. Harding & Son .. 364 4 1 | S. T. Morgan 273 0 0
A. Hudson ..... 358 4 10 | E. Proctor 267 0 0
D. McNeil ..... 346 18 6 | Marchant & Hirst.... 267 0 0
C. B. Remnant & Son 330 0 0 | W. A. Ashcroft 262 11 11
T. Lapthorne & Co . 325 11 5 | Vigor & Co..... 258 13 0
J. J. Richards..... 306 2 3 | A. H. Inns* 220 12 8
F. W. Harris 299 0 0

Ladywell Recreation-ground.

W. Dudley ..... £697 12 0 | Marchant & Hirst ..£199 0 0
C. G. Jones ..... 362 17 11 | E. Proctor 198 0 0
A. Hudson ..... 328 2 9 | W. A. Ashcroft 183 18 0
J. F. Penn ..... 293 15 8 | A. H. Inns..... 156 15 0
T. Lapthorne & Co.. 248 5 9 | F. Smith 128 0 5½
Vigor & Co..... 231 2 0 | G. Beazley* 112 14 9
R. Harding & Son .. 229 3 0

* Accepted.

LONDON.—For erecting workshops in Central-street and Powell-street, St. Luke's, E.C., for Mr. G. Wheeler. Mr. A. K. Stephens, architect, 210, Goswell-road, E.C.:—

C. H. Cole.....£3,441 16 8 | Balaam Bros.....£2,986 0 0
Patman & Fothering-ham ..... 3 289 0 0 | J. Carmichael 2,984 0 0
Beer & Gash ..... 3,122 0 0 | I. Grover & Son.... 2 944 0 0
J. Garrett & Son .. 2,990 0 0 | H. Young* 2,770 0 0

* Accepted.

LONDON.—For the erection of school, Eldon-road, Lower Edmonton, Middlesex (a three-floor school, with central halls, site covering 2½ acres of land), for the School Board for Edmonton. Mr. H. W. Dobb, architect, 110, London-wall, E.C. Quantities by Messrs. Young & Brown, 7, Southampton-street, W.C.:—

C. Gray Hill .....£24,000 | James Monk, Edmonton* £22,810
E. Lawrence & Sons .... 22,860 |

* Accepted, subject to the approval of the Education Department.

LONDON.—For pulling down and rebuilding corner house, No. 41, Spencer-street, St. George's East, for Mr. Geo. Crutcher. Messrs. Andrew Gray & H. Norman Gray, surveyors, 334, Commercial-road, E.:—

		Extra if party walls are rebuilt.	Total.
J. Howlett & Son	£340 0	£55 0	£395 0
C. Mantor	270 0	52 10	322 10
J. F. Holliday	262 10	45 10	308 0
E. Hardy (accepted).	240 0	50 0	290 0

LONDON.—For rebuilding the "Alfred's Head," Dorset-road, Clapham, for the Winchester Brewery Company, Limited. Mr. T. Walter Moss, architect —

W. C. Eady	£2,348	Ham & Son	£1,998
Summerford	2,122	W. Irwin	1,942

LONDON.—For the conversion of stable building, situate on the corner of William-street and Kingscote-street, into a warehouse, for Messrs. Spicer Bros., Limited. Mr. William Smith, architect, 65, Chancery-lane, W.C.:—

Rider & Sons	£1,578	Matlock Bros.	£1,323
Ward & Lamble	1,571	Stevens Bros., Yonge Park, Seven Sisters-road, N.*	1,311
Wall & Co.	1,528		
Larke & Sons	1,336		

* Accepted.

MANCHESTER.—For alterations to "The Talbot Hotel,' Ladybarn, near Manchester, for Mr. Councillor P. Murray. Messrs. C. K. & T. C. Mayor, architects, 41, John Dalton-street, Manchester. Quantities by Mr. Stone, King-street, Manchester:—

W. Wood	£685	J. & J. Parish	£491
F. Allman	610	Burgess & Galt	460
F. & E. Haynes	542	R. Carlyle, jun., Ardwick*	479
G. Macfarlane	533	Accepted.	

MIDDLESBRO'.—For the execution of street works, Bridge-street West, for the Corporation. Mr. F. Baker, C.E., Municipal Buildings, Middlesbro':—

Jones's Annealed Concrete Co., Ltd.	£143 16 0	John Cromble & Son, Middlesbro'*	£133 13 4

* Accepted.

MILFORD (Ireland).—For the construction of a reservoir, &c., Rathmullan, for the Union Guardians. Messrs. M'Laughlin & Conroy, engineers, 14, Clooney-terrace, Londonderry. Quantities not supplied:—

James Deeney, Dungiven, Londonderry £615

ROMFORD (Essex).—For the erection of new offices for the South Essex Waterworks, for the directors. Mr. Christopher M. Shiner, architect:—

H. J. Carter	£2,813	J. Brown	£2,418
D. Sharp	2,625	W. Potter	2,420
F. G. Minter	2,463		

RUSHDEN.—For the erection of cottages at Rushden as per quantities supplied by Mr. H. Knight:—

T. Swindall	£3,505	R. Marriott	£3,345
C. E. Bayes	3,500	H. Sparrow	3,340
T. Willmott	3,429	Whittington & Tomlin	3,315
F. Henson	3,395	F. & C. Berrill*	3,295
Hacksley Bros.	3,390	Accepted.	

STOKE BISHOP.—For the erection of a fountain for Mr. Francis Tayart, J. P. Mr. C. A. Rowley, architect, 26, Nicholas-street, Bristol:—

William Cowlin & Son £187

TEIGNMOUTH (Devon).—For the execution of water-supply works, for the Urban District Council. Mr. C. Jones, Engineer, Town Hall, Teignmouth. Quantities by engineer:—

	Landscore Reservoir.	Hazeldown Reservoir.
J. Shaddock	£958 12 9	£6,673 0 4
C. Francis	896 2 9	7,481 13 3
E. Duke	894 2 3	6,996 8 0
Willey & Co.	834 0 0	7,626 2 4
Mingo & Boone	833 0 0	6,610 0 0
E. P. Bovey	826 16 6	6,895 14 0
W. Burden	813 2 0	6,347 9 0
W. Gibson	796 17 6	6,829 18 6
A. H. Slocombe	768 5 0	5,818 8 12
Best & Hawkins	756 7 4	6,375 13 5
Dart & Pollard	726 0 0	5,874 0 0
J. Fisher, Plymouth	*705 7 5	5,484 17 6

* Accepted.

TWICKENHAM.—Accepted for building eighteen villas on the Seymour Estate, Twickenham. Mr. J. H. Richardson, architect, 37, Finsbury-pavement, E.C.:—

T. Bendon £4,860

C. B. N. SNEWIN

MAHOGANY, WAINSCOT, WALNUT, TEAK, VENEER, and TIMBER MERCHANT,

Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL, HATTON GARDEN, and 29, RAY STREET, FARRINGDON ROAD, E.C.

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LONDON SCHOOL BOARD TENDERS.

THE following lists of tenders were submitted by the Works Committee to the last meeting of the London School Board:—

DETMOLD-ROAD.—Enlargement—Boys, 120; girls, 120; infants, 140; total, 380; providing additional water-closets for girls, three teachers' rooms, and fitting-up additional cloak-rooms for girls:—

		Extra for brickwork in cement.
Unsigned	£4,828	£115 0
Kilby & Gayford	4,785	80 0
G. S. S. Williams & Son	4,793	97 0
Stimpson & Co.	4,582	80 0
J. Willmott & Sons	4,471	97 10
W. Shurmur	4,444	77 0
Treasure & Son	4,313	96 0
McCormick & Sons	4,292	78 0
E. Lawrance & Sons*	4,098	106 0

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C. J. (list appeared in our last issue).—J. C., J. M. (amounts should have been stated).

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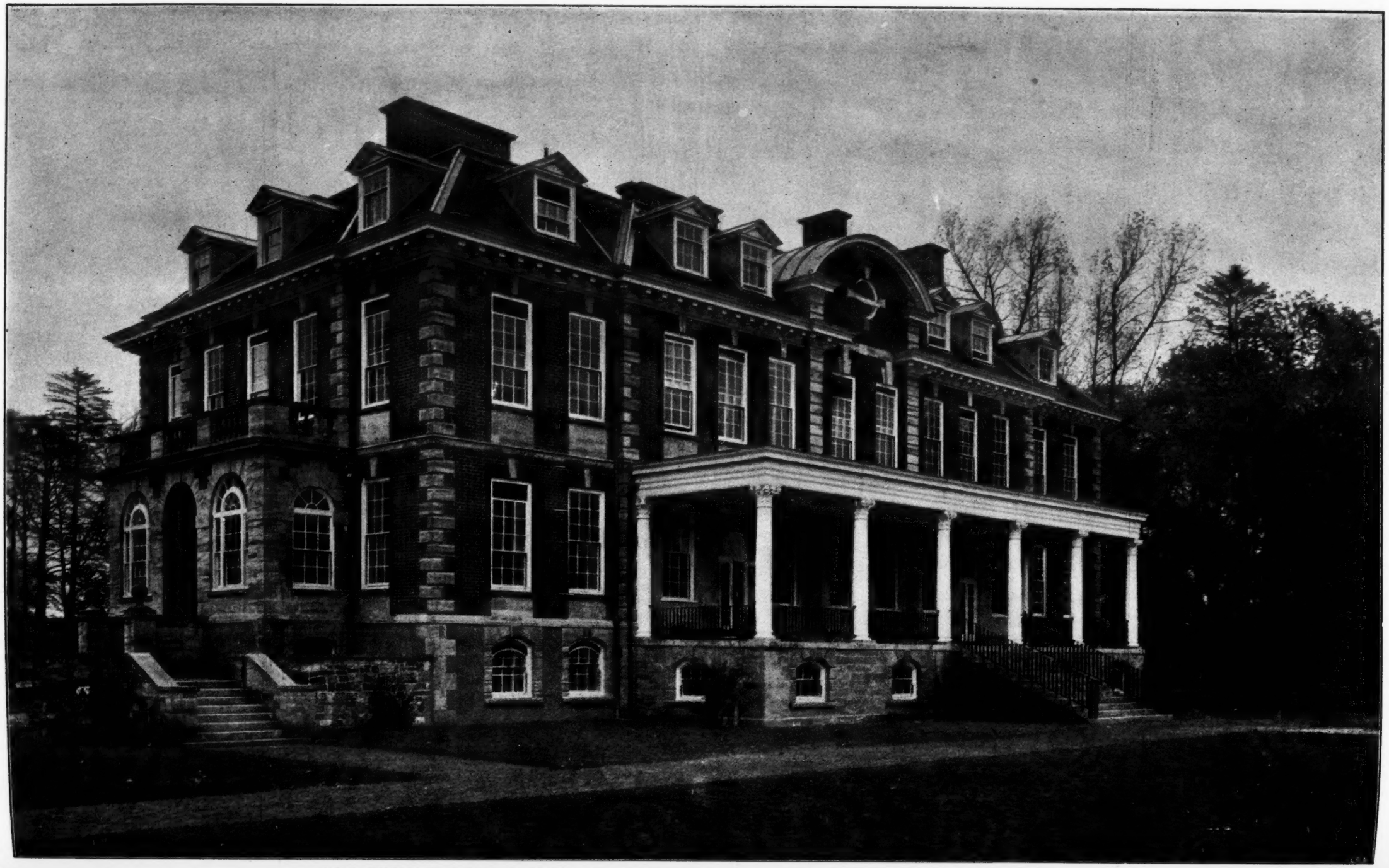

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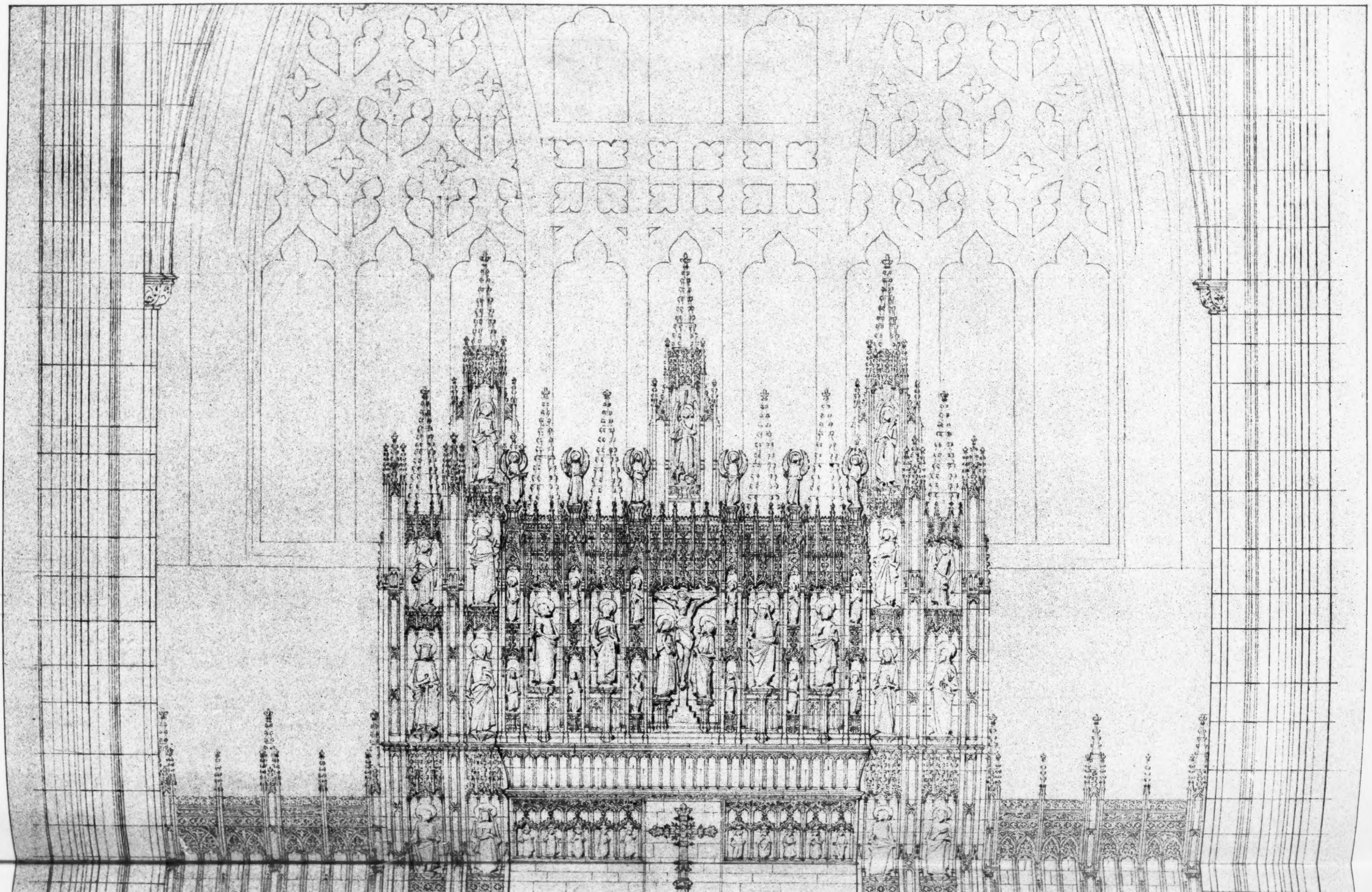

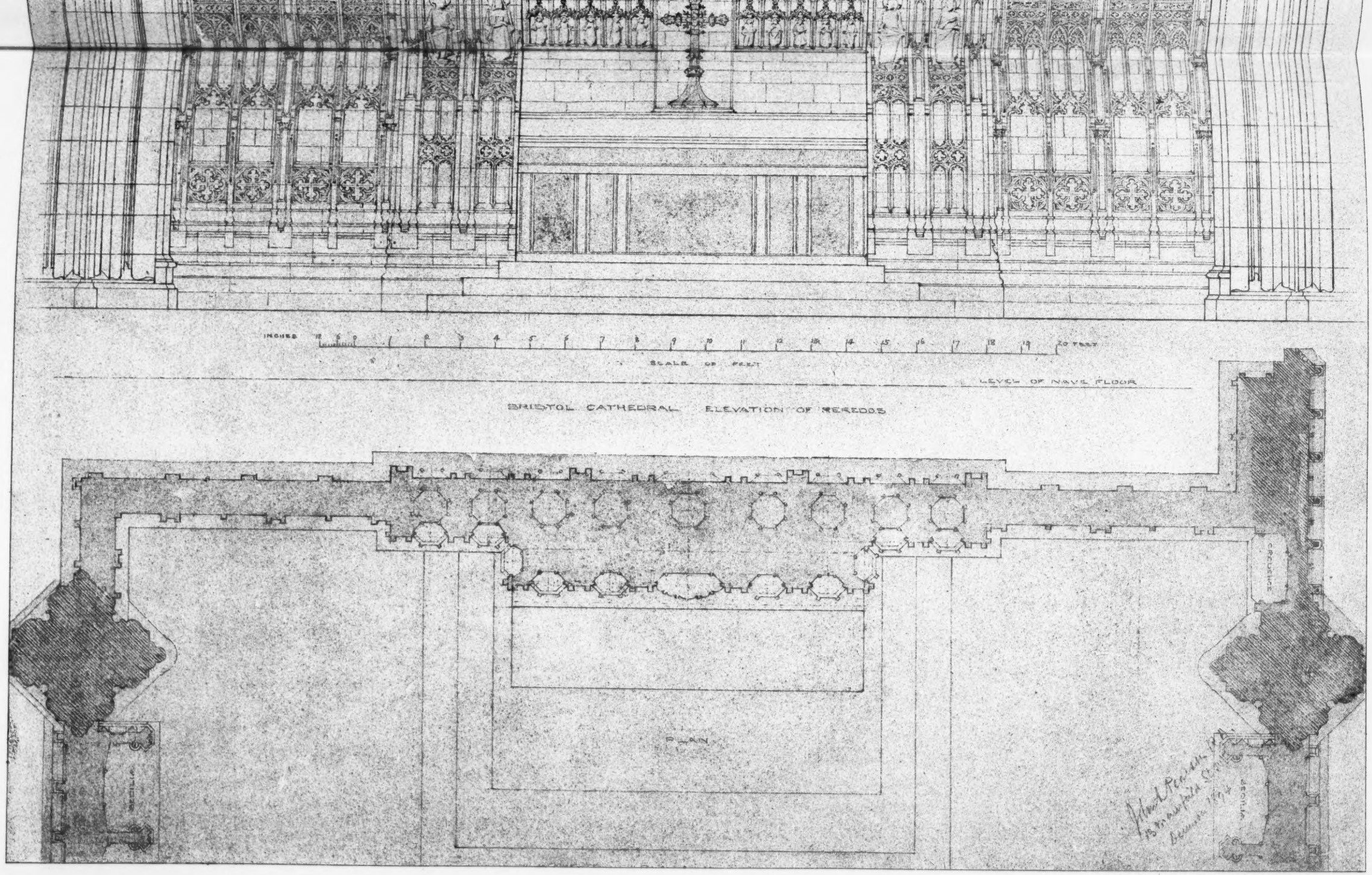

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PLAN OF FLÊCHE

SECTION THRO' HIP

PLAN OF ANGLE AND BUTT REST

SECTION THRO' WINDOW.

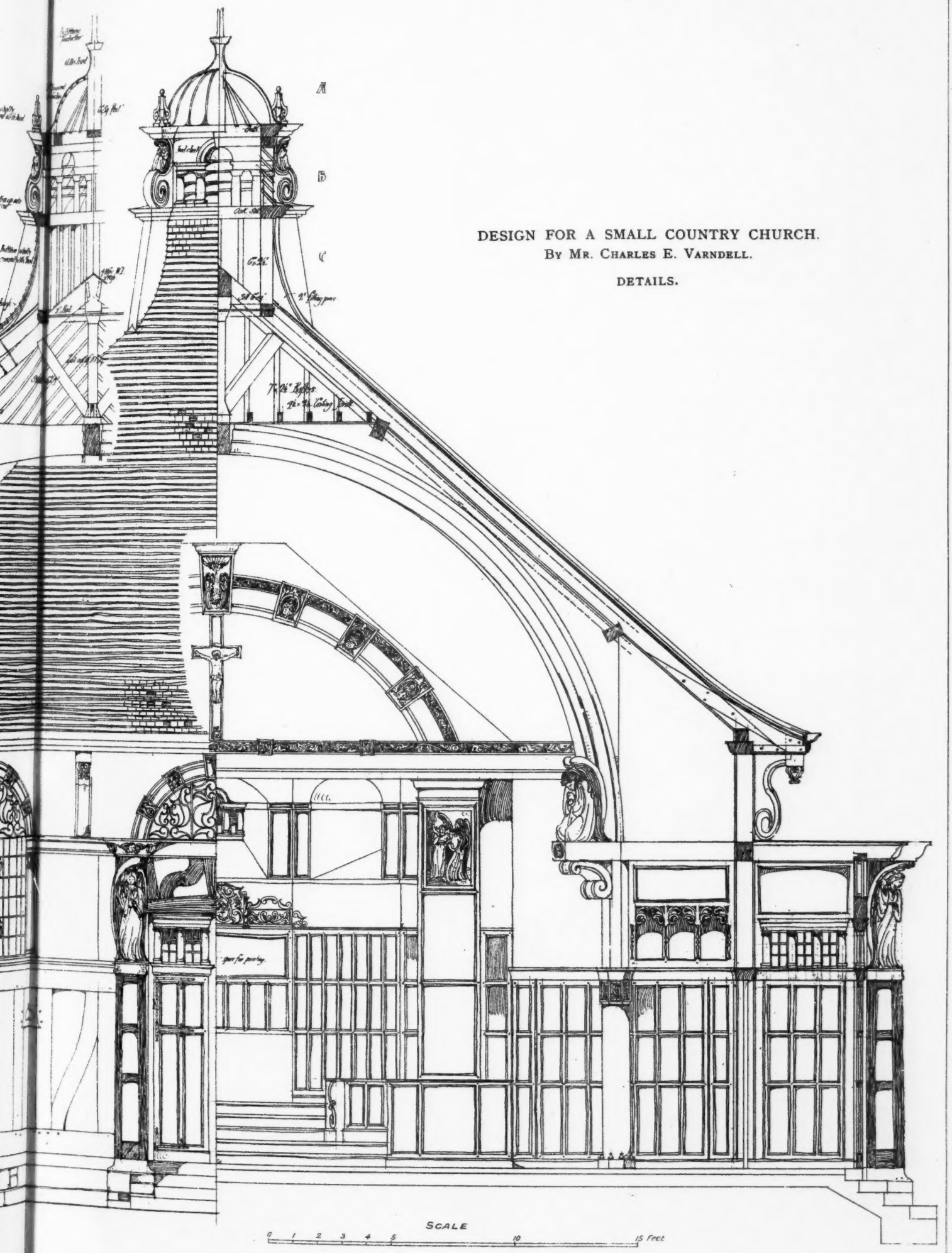
TRUE SECTION OF WALL

Scale of wall scale for facings and foundations

DESIGN FOR A SMALL COUNTRY CHURCH.

By Mr. Charles E. Varndell.

DETAILS.



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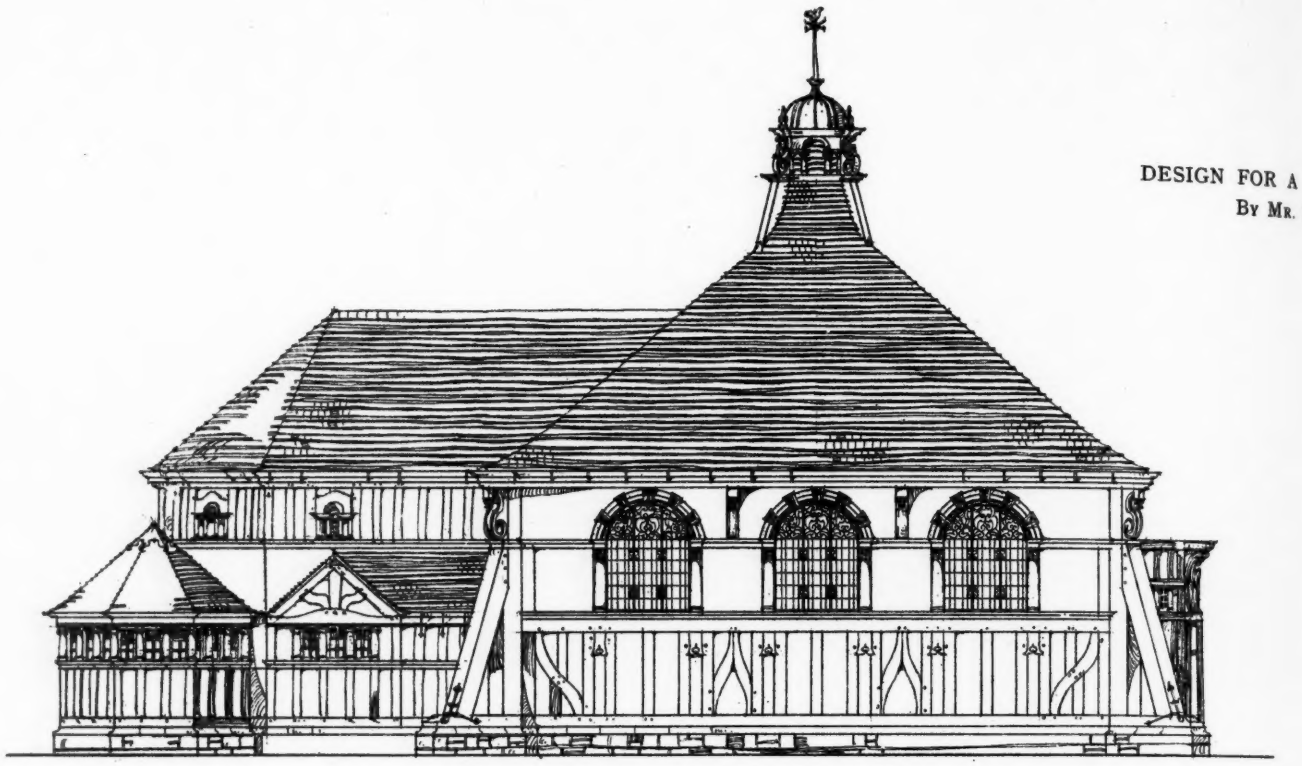

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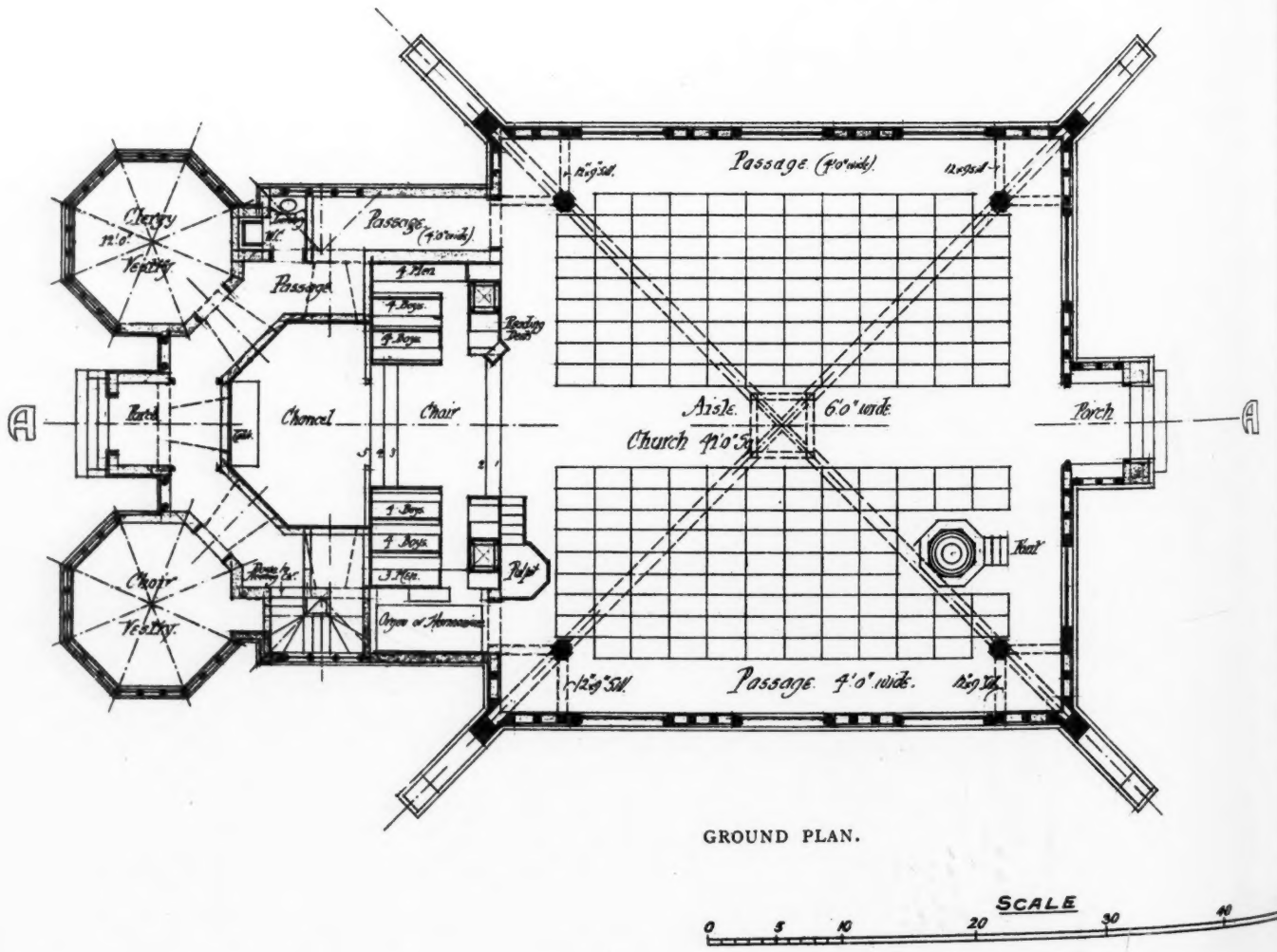
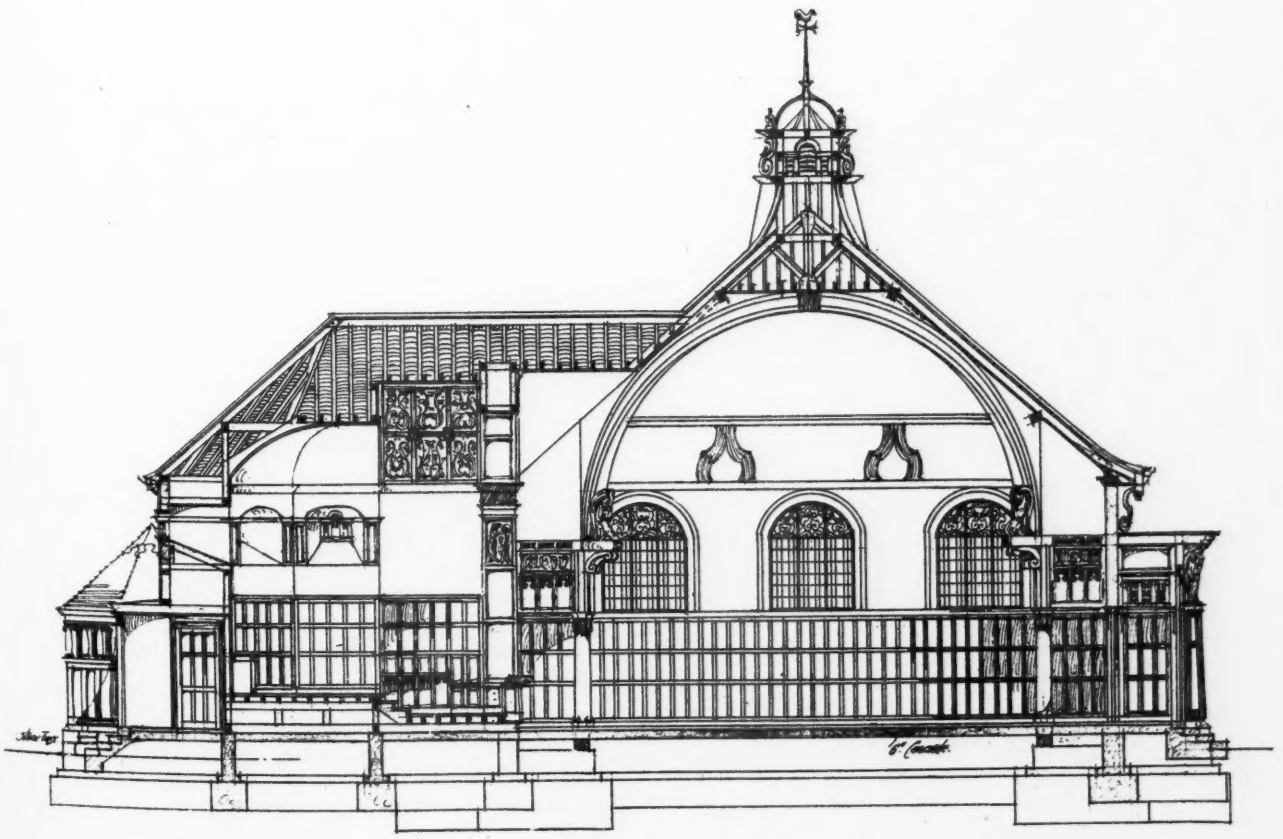


GROUND PLAN.

A SMALL COUNTRY CHURCH.

ER. CHARLES E. VARNDELL.

ENTRANCE FRONT.



SECTION A A.

40 50 Feet

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